The American City

Radio-equipped horse, ridden by Miami patrolman, tuned to headquarters over a Motorola "Handie-Talkie" unit. The City of Miami, through the Division of Communication of the Department of Public Safety, plans to make a supply of these units available to the mounted police and to commanding officers of both fire and police departments, district fire chiefs, and county investigating officers.

Newark paved with Texaco in 1908

41-year-old Texaco Asphaltic Concrete pavement on 13th Street in Newark, N. J., continues to give satisfactory service.

~and it has paved with Texaco in 1949

A Texaco Asphalt pavement constructed this year on Sixth Avenue, Newark, by the American Paving Corporation of that city.

When a city receives 41 years of low-cost service from a pavement, it has no hesitation in laying the same type of pavement on other streets. That has been the experience of Newark, N. J. with Texaco Asphaltic Concrete.

The Texaco Asphalt pavement on 13th Street in Newark was laid in 1908. When you distribute the initial cost of this pavement over 41 years and add the small expenditure required for maintenance, the annual cost to Newark has been exceptionally low.

To other city officials interested in securing the greatest return for their paving dollars, Newark's experience with Texaco should furnish food for thought.

Texaco Asphaltic Concrete, as well as other heavy-duty and low-cost types of asphalt paving suitable for city streets, are fully described in the booklet, "Texaco Asphalt Paving—Plant-mixed Types." A request to our nearest office will bring you a copy for your information and file.

THE TEXAS COMPANY, Asphalt Sales Dept., 135 E. 42nd Street, New York City 17

Boston 16 Chicago 4 Denver 1 Houston 1 Jacksonville 2 Philadelphia 2 Richmond 19

TEXACO REG. T.M.

TEXACO ASPHALT

Index to Contents of This Issue

AIRPORTS AND AVIATION
Weir Cook Airport Gets Out of the Red 125

ANNIVERSARY
More Letters from Subscribers 7

BOND MARKET
Municipal Bond Market 155

BUSINESS MACHINES
Charlotte Modernizes Clearing House of 115,000 Welfare Cases 120

CITIZENS AND GOVERNMENT
Pittsburgh's Mayor Acclaims Research and Citizen Aid 5
Government by the People—Casper's Long Range Plan 82
The City Tells Its Story 106
Hamiltonians Enjoy City Council Broadcasts 114

CONFERENCES AND CONVENTIONS
Conventions—When and Where..... 157

COUNCIL-MANAGER PLAN
Small Maine Town Benefits from Three Months with Manager 118
Recent City Manager Appointments.... 153

FINANCE AND TAXATION
Governmental Taxes and Local Revenues in 1948 9
28 States Require Annual Property Valuations 83
Uniform Municipal Accounting 97
Noonan Calls for Scientific Assessing... 111
Municipal Bond Market 155

GARDENS
Maplewood's Community Greenhouse.... 127

GOVERNMENT AND ADMINISTRATION
The Judge's Job in a City Court..... 100

HOUSING
Britain's Pioneer Health Center 88
Playgrounds at New York Housing Projects Encourage Imagination 101
Smaller Cities Benefit from New York State's Housing Program 113

INTERNATIONAL RELATIONS
Scientists Examine World's Natural Resources 112

LAWS AND LEGAL DECISIONS
Is It Legal to Pay Convention Expenses of Public Officials? 119
Zoning and Planning Notes 147
Legal Notes and Decisions 150

LIGHTING, OUTDOOR
IES Sponsors Bulletin on Standards..... 141
Good Street Lighting Is Money in the Bank 141
Lighting Ceremony in Kankakee, Ill. ... 143
Merchants Benefit in Coraopolis 143
Rochester Reports Street Lighting Costs. 143
Mercury-Vapor White Way for North Adams 145
Watertown Has a New Sports Field..... 145
When Candles Lighted New York Streets. 165

NEWS AND ILLUSTRATIONS
Items from Manufacturers 167

PLANNING AND ZONING
National Chamber's Policy Declarations.. 9
Signs Publicize Master Plan..... 9
A Redevelopment Program for Norfolk, Va. 79
Government by the People—Casper's Long Range Plan 82
El Paso Approves New Planning Department 95
Zoning and Planning Notes 147

POWER
Atomic Energy for Power Plants—When? 109
How Canton Electric Plant Beat "High" Operating Costs 117
Chattanooga Power Board's Big Mary.... 152

PUBLIC HEALTH
Britain's Pioneer Health Center..... 88
DDT No Polio Cure 131

PUBLIC RELATIONS
Signs Publicize Master Plan..... 9
Portland's Visitors' Information Center Shows a Profit 104
The City Tells Its Story 106
The "Tree City's" Entrance Sign 107
Hamiltonians Enjoy City Council Broadcasts 114

PUBLIC SAFETY
Consolidate Inspection Service..... 17
Does Your Fire Department Have Separate Radio? 17
Minneapolis' 2,000-gallon Pumping Engines 17
Safer Cities 17
Akron Police Favor Car In pection..... 112
Fire Alarm Batteries 121

PUBLIC WORKS PROGRAMS
For Useful Public Works Wisely Financed 7
National Chamber's Policy Declarations.. 9

PURCHASING
The Right Way to Specify and Get Good Police Uniforms. 91

QUIZ
THE AMERICAN CITY Quiz 5

RECREATION
Needed: More Municipal Golf Courses .. 94
Playgrounds at New York Housing Projects Encourage Imagination..... 101
The Municipal Marina 108
Maplewood's Community Greenhouse.... 127

REFUSE COLLECTION AND DISPOSAL
Disposable Containers 7
Loader Repairs Traffic Light..... 85
Rome, N. Y., Refuse Collection 111
Marrero Incinerator a Shining Example 123

SEWERAGE AND SEWAGE TREATMENT
More Cities Charge Sewer Rentals..... 19
More Sanitation Services Needed 19
The Rugged Dollar Bill 19
A Day with the Repair Crew..... 25
Composting Sewage Sludge—Two Views.. 90
Oceanside Calif., Sewage-Treatment Plant To Be Odor-Free 92
Ohio River Standards in Cincinnati Area 105
A Small City's Sewage-Treatment Plant.. 110
Hagerstown Doubles Primary Settling Capacity 115
How to Keep Sewage-Plant Equipment Young 131

SMOKE ABATEMENT
Allegheny County's Smoke-Control Program 87

SNOW REMOVAL
Toledo Tangles With King Winter..... 96

STREET CLEANING
A Sticky Business 13
Clinton, Iowa, Flushes Its Streets..... 13
El Paso Gets New Sweepers 13
San Diego Motorizes Street-Sanitation Men 116
More Trash Baskets for Allentown, Pa... 131

STREET CONSTRUCTION AND MAINTENANCE
Street and Highway Projects in Three States 15
Mile-High Paving 84
Oil Maintains Minneapolis Dirt Streets.. 129

TRAFFIC CONTROL AND FACILITATION
New Revenue Source from Parking Meters 7
Parking Authority Wants Facts..... 105
Vancouver's Voluntary Inspections Average 10 Minutes Each 133
Miami Signalizes Some Tough Spots.... 135
Bluefield Makes Money on Municipal Parking Building 139
Remember When? 149

UNIFORMS
The Right Way to Specify and Get Good Police Uniforms 91

URBAN REDEVELOPMENT
A Redevelopment Program for Norfolk, Va. 79

WATER SUPPLY AND TREATMENT
How Cement Joints Work in Water Mains 11
Morristown, N. J., Adopts Fluoride Treatment 11
"Four-Phase Fire Protection" Will Guard New Nottingham Filtration Plant.... 86
Fort Worth's Ten-Year Program..... 98
New Filter Plant at Phoenix Works Part-Time 102
Soil Erosion Adds to Stream Pollution.. 103

VOL. LXIV **OCTOBER**
No. 10 **1949**

The American City

Issued Monthly by the American City Magazine Corporation 470 Fourth Ave., New York 16, N. Y.

HAROLD S. BUTTENHEIM, Editor
ALDEN W. WELCH, Secretary, Research Editor
WILLIAM S. FOSTER, Engineering Editor
CAROL W. HIGHTOWER, Production Editor
CARL ERIC CARLSON, Associate Editor

EDGAR J. BUTTENHEIM, President
GEORGE S. CONOVER, Vice-President
EDWIN WAGNER, Treasurer
DONALD V. BUTTENHEIM, General Manager
MYRON MACLEOD, Advertising Manager
EDWARD GEORGE ALLEN, Jr., Promotion Mgr.
EDGAR M. BUTTENHEIM, Asst. Advertising Mgr.

●

BRANCH OFFICES
Daily News Building, Chicago 6

2238 Ben Lomond Drive, Los Angeles 27
Albert T. Miller, *Pacific Coast Manager*

Mills Building, San Francisco 4
Duncan A. Scott & Co., *Representatives*

●

Subscription $4 per annum to any part of the world
Single copies, 50c
Entered as second-class matter, July 20, 1910, at the Post Office at New York, N. Y., under Act of March 3, 1879. Printed in the U. S. A.

●

***The American City* is indexed regularly by Engineering Index, Inc., and the Reader's Guide to Periodical Literature.**

●

THE MUNICIPAL INDEX and ATLAS, used in connection with the current advertisements in THE AMERICAN CITY, places officials in the most favorable position to obtain all types of available equipment and supplies from manufacturers who desire to serve municipal government departments. This 867-page annual is published by The American City Magazine Corporation, 470 Fourth Ave., New York 16, N. Y.

See pages 21, 23, 25, 26, 28, 30, 161, 163, 165 for catalogs and publications on municipal and civic subjects

List of coming conventions, page 157

Index to Avertisers, page 210

Custom Tailored
LONG DISTANCE CALLS

Made to Your Measure
in Less Than Two Minutes

IT WOULD BE NICE if we could keep a lot of ready-made Long Distance calls waiting in neat rows for you to take your pick. But it won't work that way.

You need too many sizes. Today, it's a 100-mile or 1000-mile call. Tomorrow, it may be our special 2947-mile size (the longest possible call in continental U.S.).

Whenever you call, wherever you call, we make it to your measure and deliver it in less than two minutes on the average!

It takes lots of planning to do such careful tailoring. It takes a lot of equipment. And it takes the skill and experience of many, many people.

Long Distance service grows steadily faster and better. And it's *friendly* service all the way.

BELL TELEPHONE SYSTEM

Our Municipal Notebook

Pittsburgh's Mayor Acclaims Research and Citizen Aid

IN THE opinion of Mayor David L. Lawrence of Pittsburgh, Pa., as expressed at the 1949 Conference of the Governmental Research Association, at the Bedford Springs Hotel, Bedford, Pa., on September 7, "properly conducted research is the best assistance that the people of a city can render to their municipal administrators."

We in Pittsburgh (said Mayor Lawrence) believe that we have a story to tell the people of America. It is the story of a city that has determined to improve itself—to wipe out the scars of its past—to build for itself and its people a secure place in the abundant economy that modern technology makes possible.

We know that our problems are not unique. We share them, in greater or less degree, with every large industrial city. What we do believe may be unique is the united community determination with which we are attacking them.

We have built up a teamwork approach, in which the city government, the county government, the state government, and the federal government are all brought into a working partnership of effort that benefits Pittsburgh.

We have called upon, and we have received, the help of the ablest leadership in business, industry, and finance. Equally, we have called upon, and we have received, the help of the ablest leadership in organized labor.

The results are evident in the progress we are making.

Mayor Lawrence then outlined some of the progress that Pittsburgh has been making in smoke elimination, flood control, limited-access highways, provisions for off-street parking, public health and recreation, sewage treatment, housing, urban redevelopment, and city planning.

In all this work, private research and planning agencies have been of enormous assistance. I do not think that we could do this complex job without them.

They help us surmount the problems of politics and personalities.

They furnish a continuity of thought and a sustained effort, that is sometimes lost in the kaleidoscopic changes of public affairs.

They are the bird dogs that hunt down ideas, and keep pointing at them until somebody does something about them.

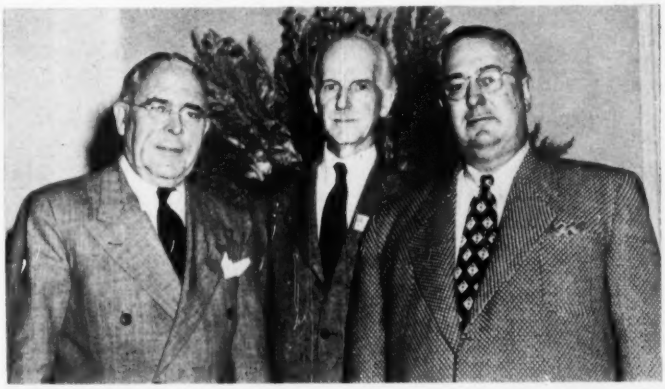
In the direct field of municipal finances, we have found that the staff of the Pennsylvania Economy League does an honest, unobtrusive, workmanlike job—a job that has helped us in holding a firm financial line . . .

In the whole civic program, we have had the assistance of the Allegheny Conference on Community Development, which is, we believe, something novel in the community life of American cities.

The Allegheny Conference is a liaison body. It keeps us working together. It helps us convert research into accomplishment. It works with us to bridge the divisions that may arise between agencies of government. It works with us to awaken industry to community needs. It puts high skills at the unselfish service of the public.

It is through the Conference that such agencies as the Economy League, the Federation of Social Agencies, and the Pittsburgh Regional Planning Association do much of their most effective work . . .

Quite frankly, if the purpose of my visit to your convention is to tell you what one Mayor thinks of research in government, I must repeat myself again, and tell you that this Mayor thinks it is invaluable.



Mayor David L. Lawrence of Pittsburgh; Harold S. Buttenheim, Editor, The American City; and Leslie J. Reese, Director, Western Division Pennsylvania Economy League, at the 1949 Conference of the Governmental Research Assn.

The American City Quiz

Match Wits with the Experts

QUESTIONS

1. **How much does a concrete pavement slab shrink?**
2. **What type of load-transfer devices are required in concrete pavement at the joints?**
3. **How can you reclaim badly cracked concrete pavement that is too rough to handle traffic?**
4. **How can one stop deterioration of concrete bridge piers in salt-water areas?**
5. **How can one increase the storm flow through catch basins into the sewer?**
6. **What principle should guide a water department when limiting or prohibiting the use of water for air conditioning as a water-conservation measure?**
7. **What percent of parking-meter revenue is spent making collections and maintaining the meters?**
8. **How much do sanitary fills used for refuse disposal settle?**
9. **What relation does traffic density have to traffic accidents?**
10. **What factors should influence the decision to use one-way-street principle in traffic handling?**

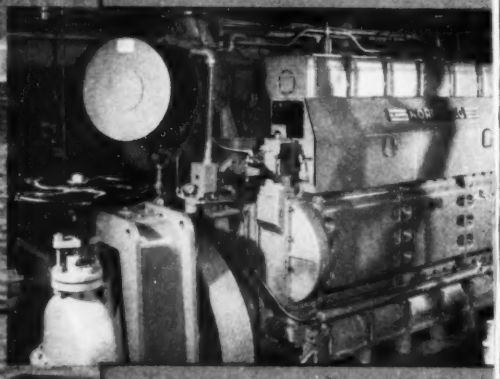
(Answers on page 9)

"DELUGE"

NEW City of Milwaukee FIRE FIGHTER depends on four NORDBERG DIESELS for pumping and propulsion

SPECIFICATIONS:

HULL.....98'1" x 22' x 9'9"
SPEED.....14 mph
ENGINES.....Four 375 hp Nordberg Supercharged Diesels. Two used for propulsion, may be declutched so that all four engines are used for pumping.
PUMPS.....Four centrifugal units, each delivering 3000 gpm at 150 psi, or 2500 gpm at 100 psi. Maximum pumping capacity, 12,000 gpm.



MILWAUKEE'S new fire boat, appropriately named *"DELUGE,"* represents the last word in modern fire fighting equipment. With her four dependable Nordberg Diesels pumping 12,000 gallons per minute, this husky craft is rated second in capacity among fire boats in this country. *By replacing a former steam powered fire boat, the City of Milwaukee expects to save 90% in operating expense, for fuel, maintenance, etc.*

This is just one example of the way in which Nordberg Diesels are used to provide dependable, economical power for all classes of marine service. *Write for information on Nordberg Diesels—available in sizes from 10 to 8500 b.p.*

NORDBERG MFG. CO.
Milwaukee 7, Wis.

SM749

A DIVISION OF NORDBERG

NORDBERG DIESEL ENGINES

Letters to the Editor

From a Mayor:

I wish to thank you for your favorable treatment of Youngstown's problems in your article by W. Lowrie Kay, in the August number of THE AMERICAN CITY.

The article has been written in a very commendable manner, and we are proud that our city has been accorded such treatment in your publication.

The Greater Youngstown Area Foundation is doing, and has been doing, a fine job for our community. It is gratifying to note that the results of its work are being noticed elsewhere.

CHARLES P. HENDERSON
Mayor
Youngstown, Ohio

From a Planning Consultant:

May I add my hearty congratulations and a personal comment to the interesting series of 40th Anniversary letters published in your September issue.

More than reading matter and advertising, THE AMERICAN CITY through its constructive, authoritative articles and material has led this nation's progress in better communities, better planning and building, better housing, and advanced civic life. It has educated our municipal administrators and planners, as well as individual citizens in the arts and techniques of city planning.

To a small group in Los Angeles, comprising the Los Angeles City Planning Association, it had given us in 1913 the inspiration, through the City Planning Exhibit of The American City Bureau, which eventually led to the creation of the City Planning Commission of that city and aided in the building of Greater Los Angeles.

My very best wishes to you for many more years of successful leadership in City Planning.

SIEGFRIED GOETZE
Planning Consultant
Monrovia, Md.

From a Sewage Treatment Superintendent:

The importance of keeping up to date with current progress in any field of endeavor is well recognized. In the realm of municipal affairs, THE AMERICAN CITY performs an invaluable function in bringing to the knowledge and attention of municipal officials and employees everywhere the recent outstanding and often unique developments in cities and towns elsewhere.

Each month finds the pages well stocked with interesting and informative articles covering the various facets of municipal functions. Naturally, I find those relating to sanitation problems of greatest interest.

Occasionally, I have been a contributor and have discovered just how much reader interest THE AMERICAN CITY generates! Correspondents from all over the country, in quest of supplemental information, were heard from, and, thanks to the courteous and efficient cooperation of our secretarial staff, each received a prompt reply.

Copies of THE AMERICAN CITY having articles of special interest in connection with current subjects such as sewer-service charges and garbage grinders, etc. are filed away for future reference. We have also made extensive use of the reader service on manufacturers' bulletins to obtain data on equipment whose purchase was in prospect.

Special thanks and appreciation are due the Engineering Editor, William S. Foster, whose untiring efforts in the field of public works are reflected in the pages of THE AMERICAN CITY.

Congratulations to you on the occasion of your 40th Anniversary and best wishes for the years of service which lie ahead.

JOHN W. HOOD
Superintendent, Sewage Treatment Plant
Ridgewood, N. J.

For Useful Public Works Wisely Financed

To the Editor of THE AMERICAN CITY:

THE AMERICAN CITY for August demands public works for unemployment relief. What kind? Surely, not the leaf-raking varieties. No, not that again. If it means putting idle people to hard work on sanitation projects to purify our filthy waters, to build automobile throughways, to reforest, then, YES.

Private contractors must be given the jobs, in public bidding, and compelled to deliver completed projects fully up to specifications. They must be allowed to get efficient work out of their laborers without political interference.

Much of the cost of such public works might be met by collecting in benefit assessments or taxation the millions of dollars of increase in land values they will cause.

H. C. MAGUIRE
320 *Broadway*
New York 7, N. Y.

Editorial Comment—THE AMERICAN CITY agrees fully with Mr. Maguire's opposition to the leaf-raking varieties of unemployment relief. It is because of that opposition that emphasis was given in our August front-cover editorial to such public works of permanent value as water supply, sewage disposal, street paving, hospitals, schools, etc.

One of the reasons for resort to the leaf-raking type of employment during the depression of the 1930's was that there were not sufficient numbers of public-works projects in the planning stage which could be promptly carried out to take up the slack, and that federal aid was too little and too late.

This magazine is in hearty accord, also, with Mr. Maguire's belief that the cost of public improvements could most justly be met by recapturing for the community the added land values which wisely planned public expenditures create.

New Revenue Source From Parking Meters

SOME of the cities of the nation are offered a totally new source of revenue. Those that can immediately take advantage of this pot of gold are the 1,600 or so parking-meter cities. The new revenue is from advertising placed on the parking meters. Three advertising companies are already in this business and are advertising their service to the cities in this issue.

Heretofore about the only local revenue sources available to a municipality have been taxes of one kind or another or service or utility charges against taxpayers or residents. But this advertising plan is different. It's the national advertiser who pays and likes it.

The first thought of many city officials is that advertising on parking meters or the standards is sheer commercialism, defacement of public property and cheapening of the government. THE AMERICAN CITY believes that if the municipal governments can cash in on some unobjectionable commercialism that provides money from someone besides taxpayers and other residents, and which can be restricted to business and industrial districts—why three cheers.

The city is in the pleasant position of having to do nothing except sign a contract assigning to it a substantial percentage of the rates paid to the advertising companies by the advertisers. This contract, obviously, ought to restrict carefully the size and the type of the signs, and the streets on which they would be allowed. The contract should also cover all damage or injury claims. The city makes no investment, takes no risk and, naturally, may also advertise its own activities in this prominent manner.

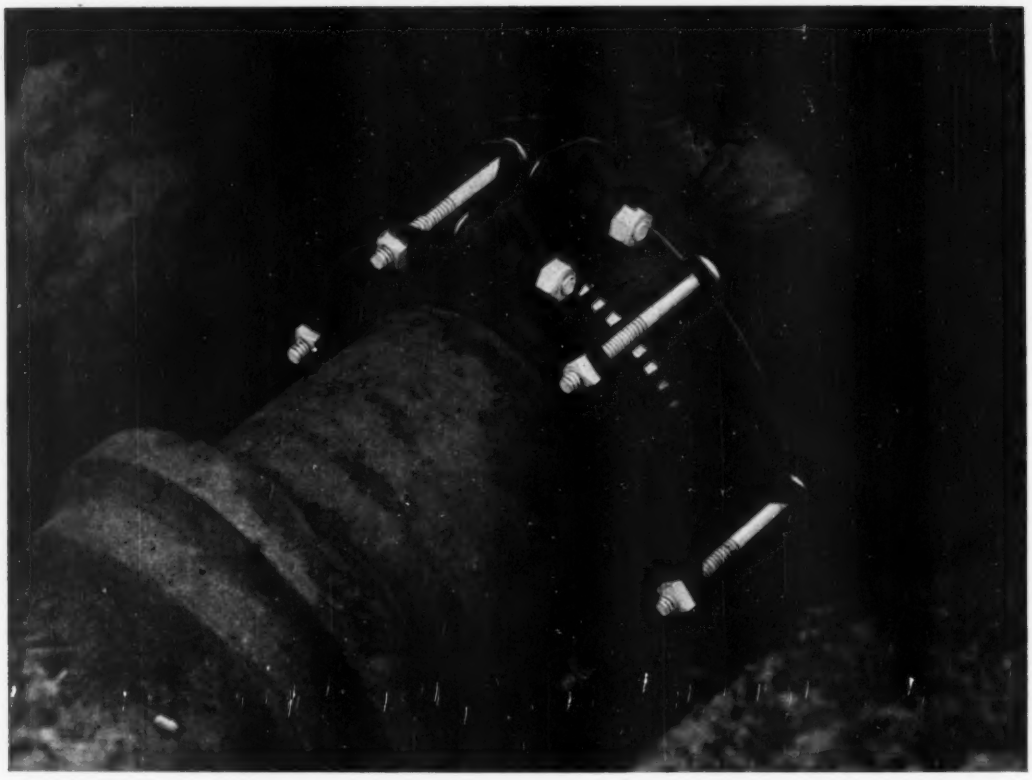
'Disposable Containers'

THE AMERICAN CITY nominates Norman MacDonald, Executive Director of The Massachusetts Federation of Taxpayers' Associations, for a prize for the cleverest wisecrack at the recent annual conference of the Governmental Research Association.

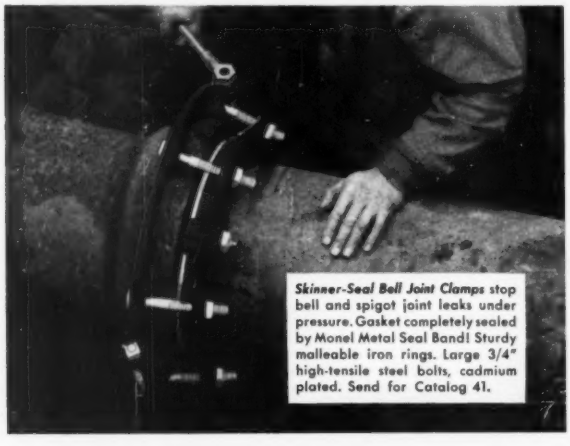
In the report on the round-table session on garbage collection and disposal, one of the discussants suggested that a practical type of "disposable container" be developed that would do away with the need for garbage cans.

"In Massachusetts," said Mr. MacDonald, "we are using disposable containers, but we don't call them by that fancy name. We call them PIGS."

But when you get your prize, friend MacDonald, we are sure you will beware of an infection by another fancy name—*trichinosis*—which is prone to plague garbage-fed pigs and the consumers thereof.



One man repairs broken main!



Skinner-Seal Bell Joint Clamps stop bell and spigot joint leaks under pressure. Gasket completely sealed by Monel Metal Seal Band! Sturdy malleable iron rings. Large 3/4" high-tensile steel bolts, cadmium plated. Send for Catalog 41.

5 TO 15 MINUTES

SKINNER-SEAL SPLIT COUPLING CLAMP makes dependable, lasting repair. One man can install in 5 to 15 minutes! Clamps built to outlast main. Gasket is completely SEALED and protected; at break by Brass Band, at top where compression rings intermesh by Monel Metal Seal Band, at sides by hard vulcanized Gasket Tips.

Insures against recurrence of trouble by introducing a degree of flexibility in the line. Each clamp tests to 800 pounds line pressure. Be prepared — order today. M. B. SKINNER CO., SOUTH BEND 21, IND.

SKINNER-SEAL SPLIT COUPLING CLAMP

National Chamber's Policy Declarations On Planning and Research

MAINTENANCE of a "shelf" of planned construction projects capable of being awarded when economic conditions call for such action is recognized to be a promising method of stabilizing construction activity. The Chamber recommends adherence to this principle by both private-industry and governmental agencies, and its effectuation as far as public works is concerned by renewal of the program of federal repayable loans for the advance planning of local public works.

Proposals have been made that expenditures for public construction be used to regulate the American economy.

We recommend that public construction be initiated only after careful consideration has been given to the need for such public facilities, and not as a means of economic or social regulation.

There should be increasing insistence upon state and community responsibility for their public works. Congress should take steps now to adopt such fiscal policies as will not unduly hamper the ability of the states and local governments to carry out their responsibilities in this and and in other fields which are within their jurisdiction.

The federal government should assemble currently available basic data regarding construction activity, both private and public, without duplicating the functions or seeking to monopolize the gathering of information now reported by private agencies and by trade associations.

Provision should be made by the construction industry for the setting up of an impartial, non-governmental agency designed to stimulate technical research and to provide an authoritative clearing house of technical information in the building field.

From the new edition of the booklet *Policy Declarations of the Chamber of Commerce of the United States*, dated July 1949.

Governmental Taxes and Local Revenues in 1948

(From a report entitled *Governmental Revenues in* 1948, issued August 1949 by the Bureau of the Census. Figures rounded to the nearest million.)

	1948	1942
Total *taxes*	$54,517,000,000	$23,027,000,000
Federal	40,104,000,000	13,417,000,000
State	7,791,000,000	4,979,000,000
Local	6,622,000,000	4,632,000,000
Total local government *revenues*	11,053,000,000	7,040,000,000
Property taxes	5,856,000,000	4,273,000,000
Other local taxes	766,000,000	359,000,000
Charges and miscellaneous revenues	1,162,000,000	613,000,000
Aid received from other governments	3,269,000,000	1,795,000,000

Although property taxes were only 10.7% of the total of all governmental revenues in 1948, local property taxes amounted that year to $39.95 per capita—which was 53% of total *local* revenues. In 1942 local property taxes totaled $31.73 per capita—which was 60.7% of total local revenues that year.

Signs Publicize Master Plan

ONE simple, yet effective, public relations idea for municipal governments and for planning commissions is the use of conspicuous signs such as the one shown, used to identify current Master Plan projects in Cincinnati. This sign gives advance notice to motorists of a forthcoming viaduct extension. The person in the photo is George C. Hayward, Executive Secretary of the Citizens' Development Committee.

The American City Quiz

Match Wits with the Experts

Answers to questions on Page 5

1. The shrinkage factor is very slight. Concrete pavement tends to curl, more than to shrink, and this produces the cracks at 15- to 25-foot intervals that have for so long been misnamed contraction joints.

2. If the joints are placed at 15- to 20-foot spacing, the aggregate interlock will be sufficient to transfer the load. At greater joint-spacing than this, some type of dowel bar is recommended. The Portland Cement Association recommends load-transfer devices at all joints within 100 feet of an expansion joint.

3. If the concrete is badly cracked, C. R. Hanes, field engineer for the Ohio State Hifhway Department, recommends breaking it further with a pavement breaker, making sure that the rocking slabs are well cracked and the fragments are driven directly against the subgrade. This can then be resurfaced by any of the conventional paving methods.

4. Deterioration takes place chiefly at the water surface. In Yarborough, Mass., the concrete bridge piers are protected by welded wrought-iron "boots" fitted in place at low tide. The boots fit loosely around the concrete piles and are backfilled with concrete.

5. Experiments at the University of Minnesota indicate that if the catch-basin-inlet gratings are set at an angle of 45 degrees to the drainage flow-line and each bar is rounded, over 75% more storm water can be directed to the sewer per inlet.

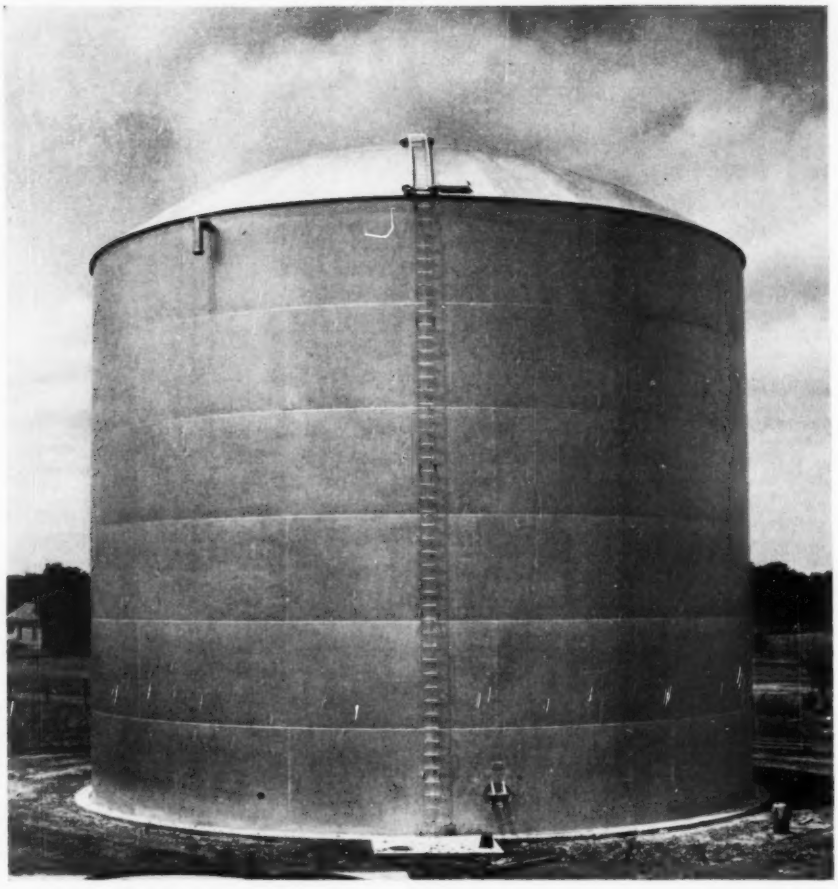
6. The use of air-conditioning equipment should not be prohibited or limited if the equipment is designed to conserve water by the use of spray ponds or condensers. Elwood L. Bean, Principal Assistant Engineer at the Philadelphia Bureau of Water, states that if the equipment is designed to conserve water, few systems exist today that cannot meet the air-conditioning load.

7. The average is 10%. The range runs from 5% to 20%, according to the International City Managers' Association.

8. They usually settle from 25% to 40%, according to a report on the subject by the American Public Works Association.

9. On a straight two-lane highway, the accident rate rises as traffic volume increases, up to a point where accidents suddenly decrease. The drop in accident rate for volumes over 9,000 vehicles per day is believed to be the effect of congestion and slower, impeded speeds that result in less hazardous operation.

10. The one-way principle may often be used on streets that are too narrow to permit free two-way movement without unreasonable restrictions on stopping or parking. One-way traffic increases the street capacity because of reduction of conflicts at intersections. Pedestrian safety is enhanced since he has to look for approaching traffic in but one direction.



Million Gallon CLEAR WELL for Bartlesville

You undoubtedly know that welded steel reservoirs improve water service in general by storing water so that you will have it where you want it, when you want it. But did you ever consider that this same type of storage facility may also be the answer to more unusual water service problems? For example, the 1,000,000-gal. Horton reservoir shown above is the clear well for a new 4,000,000-gals.-per-day water treatment plant at Bartlesville, Oklahoma. With adequate storage facilities for treated water, the plant can be operated at a uniform rate to obtain maximum efficiency. The filtered water in storage also makes it possible to provide the 20,000 inhabitants of Bartlesville with continuous service even during emergencies, such as local floods.

Horton steel reservoirs are used to provide large-volume water storage facilities for many municipal and industrial water systems. They are widely used because they are economical to construct and easy to maintain. Regular painting keeps the steel in good condition and welded construction assures water tight joints.

Horton reservoirs are built in capacities up to 10,000,000 gals., while standard capacity Horton elevated tanks range from 15,000 to 2,500,000 gals. Our nearest office will be glad to furnish estimating figures on request.

CHICAGO BRIDGE & IRON COMPANY

Atlanta 3.....2114 Healey Bldg.
Birmingham 1.....1502 North Fiftieth Street
Boston 10.....1002—201 Devonshire St.
Chicago 4.....2127 McCormick Bldg.
Cleveland 15.....2236 Guildhall Bldg.
Detroit 26.....1501 Lafayette Bldg.
Havana.....402 Abreu Bldg.
Houston 2.....2101 National Standard Bldg.
Los Angeles 14.....1503 General Petroleum Bldg.
New York 6.....3308—165 Broadway Bldg.
Philadelphia 3.....1616—1700 Walnut Street Bldg.
Salt Lake City 1.....1501 First Security Bank Bldg.
San Francisco 11.....1233—22 Battery Street Bldg.
Seattle 1.....1301 Henry Bldg.
Tulsa 3.....1625 Hunt Bldg.

Plants in BIRMINGHAM, CHICAGO, SALT LAKE CITY and GREENVILLE, PENNSYLVANIA

Water Supply and Treatment

How Cement Joints Work in Water Mains

Panel discussion at the annual AWWA meeting, held in Chicago

THE use of portland cement as a jointing material for cast-iron pipe was discussed by a panel of experts at the AWWA meeting. The panel included Dale Maffitt, General Manager of the Des Moines, Iowa, Water Works; L. E. Goit, Chief Engineer and Deputy Manager of the Los Angeles Department of Water and Power; C. F. Wertz of the Miami, Fla., Department of Water and Sewers, and G. W. Pracy, General Manager of the San Francisco, Calif., Water Department.

Mr. Maffitt has been using cement joints in the Des Moines water-distribution system since 1929, and at present has them in a little more than 17% of the system. His crews do not make the joints in cold weather.

75 MILES IN MIAMI

Mr. Wertz reports that Miami used cement joints from 1932 to 1942 in approximately 75 miles of mains, ranging from 4 to 48 inches in diameter, or 14% of the total mileage in the distribution system. In 1942 he found that sulphur-base compounds made tight joints with a minimum of labor, which was exceedingly scarce during the war years. Since 1942 virtually all joints have been made with sulphur-base compounds, using either Hydrotite or Bondo.

When forming a cement joint, the Miami crews used neat cement, mixed very dry and caulked in two layers. While a one-to-one mixture of sand and cement was used in one 36-inch line, there is no advantage in its use. He reports a 24-inch line in West Palm Beach with joints made of sand and cement disintegrated to the point where bell clamps have been necessary. A two-man crew in Miami can make a joint in a 24-inch line in 30 minutes.

USED SINCE 1917 IN SAN FRANCISCO

Mr. Pracy reported that cement joints have been used in San Francisco since 1917. On contract work, however, either cement or lead are allowed. His experience has been that the cement joints will stand vibration very well. If a leaky spot does develop, it can be caulked with lead wool.

In discussing the use of cement joints in Los Angeles, Chief Engineer of Water Works Goit stated that this type of joint has satisfied many water-works operators and can satisfy more if they will try it. His cost figures showed that Los Angeles crews can make a joint using neat cement at a much lower cost than they can with either lead or sulphur. In 1932, he stated that a cement joint could be made for one-fifth the cost of a lead joint. At the present time that relation is about one in seven.

To make the joint properly, Mr. Goit stated that the following points are important:

1. The trench bottom should be graded carefully to center and align the pipe properly.
2. The pipe spigot should be solidly "home" in the socket.
3. The pipe should be steadied in the trench by a small amount of backfill.
4. Joint caulking should not be closer than five or six lengths from pipe-laying.
5. The cement should be properly moistened. Laboratory tests have indicated that 16% of water by weight is best.
6. The mixing must be thorough to break up all lumps.
7. The cement must not be used after any partial set.
8. Pressure must not be applied on joints until they have set for 16 hours or more. Filling the pipe with water without applying pressure after four hours will be beneficial.

Mr. Goit recommended that in long lengths of pipe, a lead joint should be placed about every 500 feet to give a certain amount of flexibility to the line and allow for pipe expansion or contraction that might occur. Most joints, he stated, are made without yarn or other packing; however, packing can be used to help center and steady the spigot in the bell.

Morristown, N. J., Adopts Fluoride Treatment to Reduce Tooth Decay

MORRISTOWN, N. J., becomes the nation's eleventh and New Jersey's first city to adopt the use of fluorides in an effort to reduce tooth decay in children. This step has received the blessing of the State Department of Health and the Tri-County Dental Society. Nine Morris County communities connected with the Morristown water system are included in the plan.

The innovation was originally planned to start in December 1947 when the Water Department proposal to inject the chemical into drinking water was approved by the State Board of Health. However, the need of a new water-treatment plant delayed inauguration of the plan. Now that a new building has been completed to house chlorination and fluoridation equipment, the work can be undertaken again.

The sodium fluoride, used to produce the protective fluorine content, will be administered through Wallace and Tiernan chemical feeders, and will be based on an application of one part of sodium fluoride per million gallons of water.

In placing the powder in feeders, special gloves and gas masks must be worn by attendants because of the chemical's high toxic content. To insure constant fluoride content in the water, an expanded sampling program will be instituted by Samuel Taylor, municipal bacteriologist.

The work was made possible by the Water Department, which has been studying this project for the past two years, and was brought to a head by the combined efforts of former Mayor Clyde Potts, Consulting Engineer, and the Superintendent of Water, as well as the bacteriologist. It was through the efforts of the Tri-County Dental Society, represented by Dr. C. Kermit Botkin, that the local Board of Health urged the Water Department to install the necessary equipment to add sodium fluoride to the water at this particular time. Shortly thereafter, and with the consent and approval of the New Jersey State Department of Health, the Superintendent of Water and the Department engineers prepared the necessary plans and specifications for a new treatment building to include the fluoride required. The operation thereof will be under the supervision of Nelson S. Butera, Superintendent of Water, and Samuel S. Taylor, bacteriologist.

PROOF - *not Guesswork*

Makes FWD America's Foremost Heavy-Duty Truck

Here's actual operating proof in typical highway maintenance service. This FWD Maintainer, carrying a load of gravel, has just come out of a sharp curve on the way to location. Yes — with power on all wheels, FWD Trucks give you the extra traction to take tight turns safely. You can be sure of this even before you buy, because FWDs are scientifically tested on the FWD proving ground to speed over a 100-ft. unbanked circle without skidding. *No wonder FWD Trucks are the number one choice of states, counties and municipalities — with individual fleets of over 300 units!*

WHAT FWDs DO ON THE PROVING GROUND
1 Highball over hilly curved roads!
2 Slog thru mud — up to the bumper!
3 Speed over 100-ft. unbanked circle!
4 Twist over ditches — 18 inches deep!
5 Drive up 6% grade thru 3-ft. of sand!
6 Climb 70% grade from dead stop!
7 Climb 8-in. beam from standstill!
8 Drill pole holes to prove equipment!
9 Speed safely over level highways!
1
2
3
4
5
6
7
8
9

This is FWD's proving ground. This is your assurance that the FWD you select has the stamina to insure long life without expensive mechanical breakdowns.

An FWD speeds over the 100-ft. unbanked circle at the proving ground. For all the facts about FWD trucks, see your FWD distributor — or write direct.

An Invitation To Truck Buyers

We invite you to watch FWDs pass a series of rigid performance tests. Ask your FWD distributor to arrange your visit to our plant. Or — if you can't get away, ask him to show you the movie, *The FWD Story*. In either case, you will see for yourself how FWD trucks can help solve your heavy-duty trucking problems.

Walter G. Pfau
President,
The Four Wheel Drive Auto Company

H-1

THE FOUR WHEEL DRIVE AUTO COMPANY
Clintonville, Wis. • *Canadian Factory:* Kitchener, Ontario
FOUR AND SIX WHEEL DRIVE TRUCKS

America's Foremost Heavy-Duty Truck

Street Cleaning and Refuse Disposal

El Paso Gets New Sweepers

You look for cowboys riding in Texas. Here is one riding on an Autin-Western street sweeper in El Paso. The city acquired the sweepers after the 1947 bond election that resulted in four units like this, operating over definite routes to keep trash and dirt off the streets. Its operation is part of the responsibility of El Paso's Street Commissioner, J. T. Schwartz.

Clinton, Iowa, Flushes Its Streets

By JASPER W. MORGAN
City Attorney
Clinton, Iowa

OUR city keeps its streets clean and sanitary through the use of a flusher that we put into service last year. Until we obtained this equipment last summer, we had experienced the wrath of the citizens because of the dirty and dusty condition of the streets. We had attempted to keep the streets clean by using two sweepers and picking the sweepings with a front-end loader and trucks. This did not prove adequate. The merchants complained about the losses that they were suffering because of dust damage to their merchandise and the additional overhead required in maintaining clean shelves and clean stock on the shelves.

Since we have been using the Etnyre flusher and supplementing the work with the street sweepers and other equipment, we have had very few, if any, complaints from our people, and the merchants are most pleased with the results. Just recently one of our leading merchants stated that one summer's operation of this flusher had paid for itself in reduced damage and overhead to the various businesses in the downtown area.

We have an unusual situation in our city. We are located at the foot of a bluff on the Mississippi River. The city is long and narrow. We have over 75 miles of paved streets and many miles of dirt and rock streets. During this past winter it was necessary to dump over 250 loads of sand and cinders on the downtown streets because of the icy condition. This must of necessity be flushed off and picked up again.

Clinton is a city of about 34,000 people, in the heart of the richest agricultural area in the United States. We happen to be in the midst of the beef-feeding country. We have a tremendous farm trade and a very profitable one. Farmers come to town with their trucks, and these trucks bring in lots of dirt. We also happen to be situated on the Lincoln Highway, and therefore have a heavy flow of automobile and truck traffic through the city. This naturally carries in considerable dirt. In addition, we are situated in the extreme eastern point of Iowa and are the crossroads of most western traffic to Chicago both by rail and highway.

Our Superintendent of Streets, Herbert Westman, reports that his crews have cut street-cleaning operations almost in half by using the flusher. It is operated during the night, when there are not too many cars parked in the downtown area. He particularly likes the fact that he can clean underneath parked cars with the flusher, whereas he cannot with the sweeper.

A Sticky Business

Gum goes here in New Orleans, La. Deputy Commissioner of Public Property J. J. Holderith reports that they have materially reduced the amount of gum on the city sidewalks. The boxes are made of metal, filled with sand, and can be dumped into trash trucks easily. The concrete bases discourage any who might like to carry them off.

Adams Advantages Pay Off for

CITY OF PORT ORCHARD, WASH.

ONLY ADAMS OFFERS ALL THESE OUTSTANDING ADVANTAGES

- 8 Overlapping Forward Speeds
- High-Arch Front Axle for Clearance
- Push-Button Starting from Cab
- Positive Mechanical Controls
- Wide Range of Blade Adjustments
- Exceptional Blade Clearance in All Operating Positions
- Balanced Weight Distribution
- Easy Access for Fast Servicing
- World-Wide Dealer Service

"A sound and economical investment," says City of Port Orchard, Wash., of their Adams Motor Grader. . . . In this city as in hundreds of other cities you'll find Adams Graders hard at work on all types of projects. . . . They are ideal for building, rebuilding and maintaining city streets and alleys—for backfilling over sewers, water mains, and gas pipes—for grading playgrounds, parks, parking areas, etc. . . . There are 7 models to choose from—a size to suit your purse and purpose. Ask your local Adams dealer for full particulars on the size most suited to your requirements.

J. D. ADAMS MANUFACTURING CO., INDIANAPOLIS, IND.

Make your next motor grader an **Adams**

Street Construction & Maintenance

Street and Highway Projects in Three States

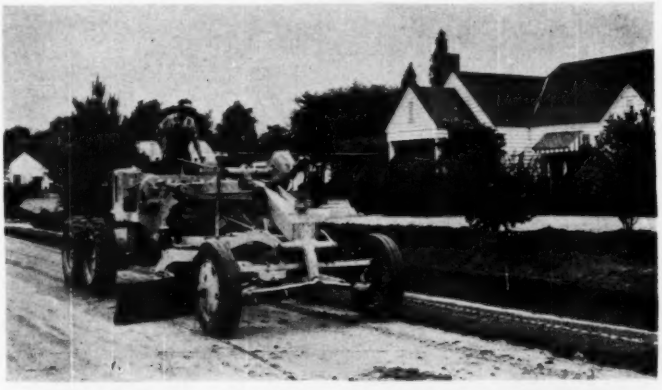
True to line and grade are the results you get when the grader is in the hands of a skilled operator. The photograph on the right shows a Caterpillar 112 motor grader at work on a local street improvement in Albany, Ga.

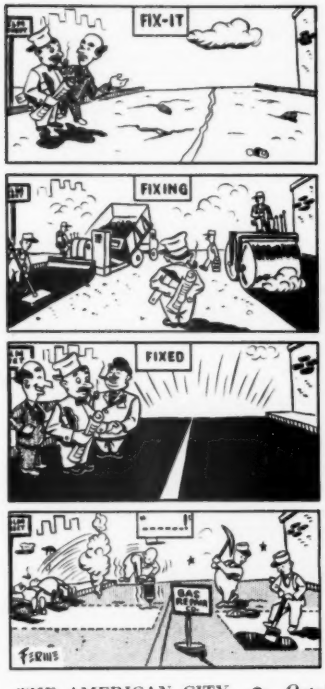
•

The center picture at the right shows an Allis-Chalmers HD-19 crawler working on the Willow Freeway, Ohio's largest highway project, recently under construction about four miles from Cleveland's Public Square. The highway, financed by funds from Cleveland, Cuyohoga County, and the Federal Government, is the main traffic artery between downtown Cleveland and the southeastern section of the county.

•

Below, right: A Caterpillar diesel No. 12 motor grader helps keep the 6,000 residents of Silver City, N. Mex., riding comfortably by maintaining this city's streets.





LET'S LOOK AT THE RECORD...

GROWTH OF THE INDUSTRY

THE FIRST FACTORY
NEWTON HIGHLANDS, MASS. 1866—1885

Larger quarters became necessary and Gamewell moved into this plant capable of accommodating about 100 workmen.
NEWTON UPPER FALLS, MASS.1885—1904

The business continued to grow, and the plant was enlarged.
NEWTON UPPER FALLS, MASS. 1904—1913

For protecting its own interests and those of its customers against fire, the highly fire resistive building at the left was erected in 1913, and has since housed Gamewell's manufacturing operations.
NEWTON UPPER FALLS, MASS. 1913—1949

Manufacturer of
FIRE ALARM — POLICE
AND OTHER
EMERGENCY SIGNALING SYSTEMS

Following the successful application of the Morse telegraph to municipal fire signaling the same basic principles were applied by Gamewell to police signaling — and to the extension of the public alarm systems to the interiors of public and private properties.

Police Signaling Systems

Gamewell developed in 1880, the first municipal police signaling system combining the principles of Morse telegraphy and the Bell telephone. This system provides the only means yet devised for completely coordinating and supervising the activities of all elements of the police forces.

Industrial and Other Applications

Gamewell systems were first applied in 1883 to the protection of industrials and institutions. The users now include many properties of the Bell Telephone System; General Electric Company; Westinghouse Electric & Manufacturing Company; Ford Motor Car Company; General Motors Company; E. I. duPont de Nemours & Company; International Harvester Company; Standard Oil Company; many Federal, State, City and County Hospitals and other institutions.

During the recent war Gamewell supplied more than 500 fire alarm and other emergency signaling systems to the U. S. and other Allied Governments for the protection of military properties.

Development

Since the inception of the municipal fire alarm industry in 1855, the burden of development has been borne by Gamewell. Experience, plus a small group of highly skilled New England workers have combined to produce signaling systems of exceptional efficiency and reliability.

We invite your inquiry.

THE GAMEWELL COMPANY

Newton Upper Falls 64, Massachusetts

Public Safety

Minneapolis' 2,000-Gallon Pumping Engines

COMMON big-city practice throughout the country is to operate two pumping engines from one fire hydrant where the hydrant has two 4½-inch outlets. These hydrants are provided in heavy mercantile and industrial districts. With our Mack 2,000-gallon pumping engines, installed last summer in Stations 6 and 10 in the loop district, we get the above "super service" with one pumping unit.

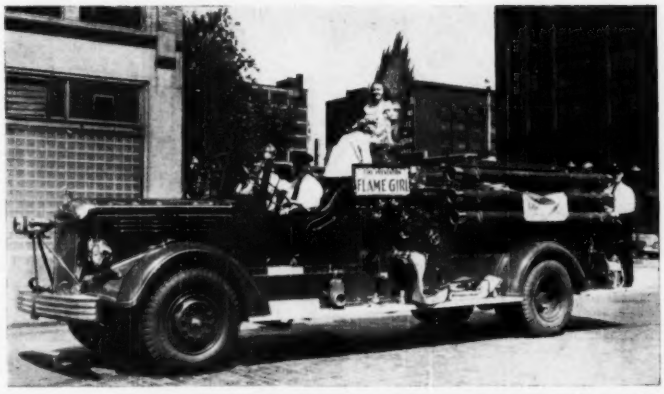
In point of power and capacity these engines are the largest land-based single fire-pumping units in the world, and cost $22,543 each. Yet they are no larger in size than the familiar 1,000- to 1,250-gpm pumper, and no harder to maneuver.

Each is capable of servicing eight hose lines with nozzles discharging 250 gpm. At large fires it services mobile lines as well as large-caliber nozzles up to 2-inch tip with tip pressures over 100 pounds, delivering 1,200 to 1,300 gallons of water per minute.

Though rated 2,000 gpm, this does not mean that much water is delivered on the fire. With hose layouts what they are, a 1,000-gpm pumper generally delivers 75 to 90% rated capacity. Our new units deliver about the same proportion of their rating.

Success of these large-capacity pumping engines depends on the water supply. Where this is adequate, these units save considerable manpower and equipment at large fires. Given enough water one of these engines does the work of two smaller units and saves manpower.

GEORGE S. LOCKHART
Chief of Fire Department
Minneapolis, Minn.



This unit can discharge 1,300 gallons of water per minute at 200 pounds' net pump pressure. Testing from hydrant, the pumper has serviced a 2¼-inch tip, discharging 1,800 gallons of water per minute—an unusual performance.

Is There a Separate Radio In Your Fire Department?

THE Fire Service of the United States has within its reach the greatest accessory ever invented for use in the fire service, and that is two-way radio. It is true that many departments are using radio, and it is likewise true that many are not, and to the latter I say, "You are missing a good bet."

But here is the point I want to emphasize. Are you using FM, and are you on a 152-162 megacycle band? You know the Federal Radio Commission has assigned, for the fire service, a limited number of channels in the 152-162 megacycle band, and there are a few departments that are using one of these channels. On the other hand, a large number of departments that are still on the 30-40 megacycle band will have to change to the 152-162 band by 1950.

There are very powerful lobbies in Washington that are trying their best to gather in more of these channels than they now have, and it is possible that they will be successful if the fire service does not seem to want these bands, and I am sorry to say their arguments sound rather plausible.

I know of fire departments that have installed radio within the last year or two, and they foolishly went to the 30-40 megacycle band. I know of one department in North Carolina that recently made application to the FCC, and requested a channel on the 30-40 megacycle band. Their excuse was that the 152-162 band would not give them enough distance. I cannot see why, for we get perfect reception over a radius of 40 miles. I cannot see why that distance is not great enough for practically any department.

I want to advise every department in the United States to install its own radio, and also advise that they go on one of the channels allocated to the fire service. Until they do, they will remain in the horse-and-buggy days.

HENRY R. CHASE, *Chief**
Miami (Fla.) Fire Department

* From a talk given at an instructors' conference in Memphis, Tenn.

Consolidate Inspection Service

CONSOLIDATING inspections in Milwaukee, Wis., will save $125,000 a year. A 100-page report prepared by the budget supervisor and the classification examiner shows that as many as 10 different inspectors are making routine visits to such types of buildings as taverns, sometimes "on the same day." Duplication was found chiefly in fire-prevention, public-health, sanitation, building, and safety-engineering inspections.

Valuable support for the survey's conclusions came from replies to detailed questionnaires sent to other cities in the United States. It was reported that in 29 large cities, the plumbing inspection function is in the same department as building inspection in 17 of the cities, in the health department in eight cities, in the department of public works in two, and in other departments in the other two instances.

Safer Cities

WHEN the 54th annual meeting of the International Municipal Signalmens Association convenes in Pittsburgh, Pa., the members are expected to be presented with the first copy of a new Association journal called *Safer Cities*. Its stated purpose is to sell city officials on the importance of municipal signal systems and their operators.

LOW in Cost... BIG in Performance

NEW ALLIS-CHALMERS MODEL D

WEIGHT 8,500 lbs.
BRAKE HP. 34.7 (famous Allis-Chalmers gasoline engine).
SPEEDS — four forward, 2.40 to 18.61 m. p. h.; reverse to 2.37.

ONE-THIRD THE PRICE OF LARGE MOTOR GRADERS...

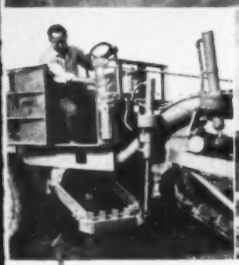
Yet has many big grader features — Tandem Drive, "Roll-Away" Moldboard, Tubular Frame, Hydraulic Blade Lift, Engine Over Drive Wheels, Drop Down Transmission, High Throat Clearance, Complete Operator Comfort, Full Visibility, Simplified Servicing.

Plus special attachments that widen its usefulness — Rear-End Loader, Scarifier, V-Type Snowplow with interchangeable blade for backfilling and light 'dozer work. Also various other accessories, including All-View Cab that is lifted off or replaced in a jiffy.

Ask your Allis-Chalmers dealer for a demonstration.

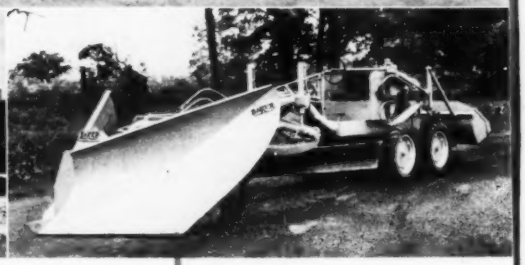
ENGINEERED FROM THE GROUND UP... to bring you BIG grader design and performance advantages.

MAINTAINS DIRT AND GRAVEL ROADS AND STREETS, CUTS SOD FROM SHOULDERS, HANDLES LIGHT CONSTRUCTION • BUILDS AND CLEANS DITCHES • SLOPES BANKS — UP TO 2:1 • LEVELS SUB-GRADE; IDEAL FOR FINISHING



HYDRAULIC SCARIFIER— does a surprising job ...rear-end weight keeps teeth ripping uniformly, at desired depth—smooth, positive steering.

LOADS MATERIAL into trucks with Tractomotive Loader— from windrows and stockpiles...surplus dirt or snow.



PLOWS SNOW with specially designed Baker snowplow (backfills with interchangeable blade).

ALLIS-CHALMERS

TRACTOR DIVISION • MILWAUKEE 1, U. S. A.

Sewerage and Sewage Treatment

More Cities Charge Sewer Rentals

CITIES charging sewer rentals collected more than $25,000,000 in 1948, the International City Managers' Association reports. The sewer-service charges are in effect in at least 250 cities over 10,000 population — 19 of which inaugurated the charge in 1948. According to the 1948 *Municipal Year Book*, published by the Association, 199 cities between 5,000 and 10,000 employed sewer charges.

REVENUES INCREASE IN LARGE CITIES

Revenue from sewer rentals reported by 182 of the 250 cities of more than 10,000 population totaled $25,900,000 last year. Average revenue collected by the four largest cities assessing sewer rentals — Buffalo, Cleveland, Detroit, and Philadelphia—averaged $2,458,600 in 1948, a substantial increase over the average of $1,607,000 reported by these cities in 1945.

Cincinnati was the largest city to set up sewer-service charges in 1948. In effect there for only six months, sewer rentals brought in more than $857,000 last year. Louisville, which adopted sewer rentals in 1947, received more than $1,200,000 in its first full year of collection of the sewer charge.

Cities charging sewer rentals show wide variations in the extent to which these revenues are relied upon to meet sewerage costs. Earmarking of sewer-service revenues for construction of new sewer systems or treatment plants or to pay current operating and maintenance costs is not universal. Many cities do not allocate the receipts from sewer rentals to any specific element of sewerage cost.

Among other cities that adopted sewer rentals last year were: Allentown, Pa.; Belleville, Ill.; Colorado Springs, Colo.; Easton, Pa.; Great Falls, Mont.; New Brunswick, N. J.; Salem, Ore.; Fort Lauderdale, Fla.; and Guthrie, Okla.

Most popular method of computing sewer charges are (1) on metered water use, (2) on a fixed per cent of the water bill, (3) by fixed uniform rates, (4) on the number of plumbing fixtures, and (5) on the number of sewer connections.

Twenty-six cities raised their sewer-service charges during 1948. Among those doing so were Buffalo, N. Y.; Des Moines, Iowa; El Paso, Texas; Greensboro, N. C.; Alexandria, Va., and Ann Arbor, Mich.

PHOTO COURTESY OF ALLIS-CHALMERS MANUFACTURING COMPANY

An Allis-Chalmers HD-5 with a Tracto-Shovel completes backfilling on a new service line in Phoenix, Ariz.

More Sanitation Services Needed

SEWERAGE and drainage facilities in American cities and suburbs have not kept pace with the sudden growth of our metropolitan centers. Major General Philip B. Fleming, former Federal Works Administrator, recently revealed that the nation needs more than 80,000 miles of new sewer lines and at least 12,000 new treatment plants to meet the expanding needs of 148,000,000 Americans.

According to the International City Managers' Association, 289 American cities of 5,000 population or more increased their area through annexation during 1948. These annexations have committed the cities to extend sewer and other municipal services to the outlying areas just absorbed. By annexing 11 square miles, Roanoke, Va., obtained the most new territory during 1948. Nineteen cities increased their area by more than one-quarter through annexation.

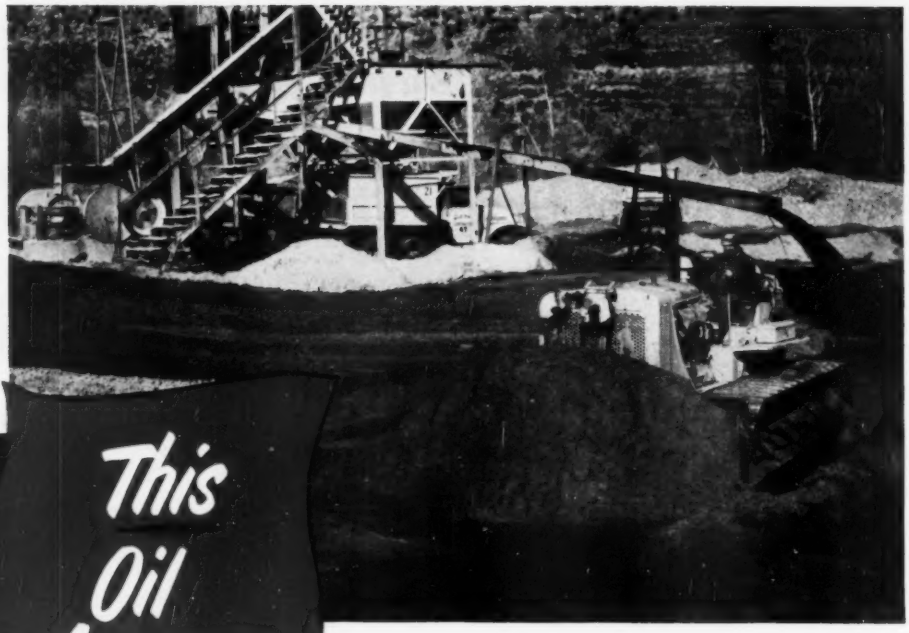
The Rugged Dollar Bill

EVERYONE seems agreed that a dollar bill has a hard time making itself noticed today. But listen to the story of this dollar bill and see whether you know of any that can stand the gaff more gallantly.

The place was Frederick, Md., at the sewage-treatment plant. The time was last August. Somehow or another, a lost dollar bill came down to the plant with the daily contribution of sewage. When it emerged from the sewer, it first slipped through the bar screens, then floated into the primary settling tank, eased through a notched wier, was forced through a pump, and finally stopped in one of the nozzles of the trickling-filter distributor arm. How it got through the notched wier, no one knows.

Superintendent of Sewage Robert Hartman detected the rugged dollar bill when he discovered that one of the nozzles wasn't working. For a while he kept it in his office, slightly shredded but still negotiable—attested by the fact that he took it to the bank and was able to turn it in for a crisp new one. Its journey, he states, proves that despite inflation, deflation, and the price of a pound of steak, the dollar bill still is, on occasion, a pretty tough object.

(*Continued on page* 25)



This Oil Assures a Double Saving

Texaco Ursa Oil X** cleans as it lubricates . . . reduces both fuel consumption and maintenance costs

When you put *Texaco Ursa Oil X*** in your heavy-duty gasoline or Diesel engines, it goes right to work removing any accumulated deposits of carbon, varnish and sludge from vital engine parts. Then, when engines are clean, *Texaco Ursa Oil X*** keeps them clean!

*Texaco Ursa Oil X*** is fully detergent and dispersive, and has exceptional resistance to oxidation. It keeps valves active and rings free, assuring full power from every gallon of fuel. It guards bearings against corrosion — makes all parts last longer. Thus, you save on fuel — save on maintenance.

For more efficient and economical operation of hydraulic mechanisms, use *Texaco Regal Oils (R & O)* as hydraulic mediums. They guard against formation of sludge and rust, prolong pump life, assure smoother operation and less time-out for servicing.

Use Texaco Products and the Texaco Simplified Lubrication Plan to cut costs on all your jobs. A Texaco Lubrication Engineer will gladly help you. Call the nearest of the more than 2300 Texaco Wholesale Distributing Plants in the 48 States, or write The Texas Company, 135 East 42nd Street, New York 17, N. Y.

TEXACO

TEXACO Lubricants and Fuels

FOR ALL CONTRACTORS' EQUIPMENT

Get This Literature – Free!

Please check over the list of interesting free catalogs on this and following pages. To obtain the literature you want, write directly to the manufacturers, or circle the identifying numbers on this coupon and mail it to THE AMERICAN CITY MAGAZINE, 470 Fourth Ave., New York 16. We will see that catalogs are sent to you without expense or obligation.

10/49

425	426	427	428	429	430	431	432	433	434	435	436	437	438	439
440	441	442	443	444	445	446	447	448	449	450	451	452	453	454
455	456	457	458	459	460	461	462	463	464	465	466	467	468	469
470	471	472	473	474	475	476	477	478	479	480	481	482	483	484
485	486	487	488	489										

Name ..... Position .....

Address .....

Get Ready for Winter With Salt

425 Sterling Auger-Action rock salt can be used in any mechanical spreader for eliminating ice and snow on streets. When the salt crystal reaches the pavement it becomes brine, breaking the bond between the road surface and the ice. Write for information to the International Salt Co., Inc., Scranton, Pa.

Fluorescents For Street Lights

426 Post-Lites, the new outdoor, all-weather fluorescents made by the W. H. Long Co., 108-114 W. Illinois St., Chicago 10, Ill., requires only standard 2-inch pipe set in concrete and connected to 110-120-V service wire. Or old light posts may be converted to accommodate these new street lights that fan light out horizontally at the level of use. Ask for *Post-Lite Street-Lighting Bulletin*.

A Well-Padded Seat

427 The Sikes Co., Inc., 42 Churchill St., Buffalo 7, N. Y., will send you data describing its line of chairs, including the No. 239 — luxuriously upholstered in top-grain leather, with padded head rest and arms, and foam-rubber seat over resilient springs.

New Police Overcoats

428 Write to the Smith-Gray Corp., 730 Broadway, New York 3, N. Y., and inquire about the new police overcoats that are Jen-Cel-Lite insulated to provide comfort and warmth without weight.

2-Way Radio Meets New FCC Rules

429 The General Electric Co., Bldg. 1, Room 239D, Electronics Park, Syracuse, N. Y., will send you data on the new G-E 25-50 mc equipment for 20 kc or 40 kc channels. This equipment meets or exceeds all the new Federal Communications Commission rules, and eliminates off-channel skip interference.

Select Fence According To Its Job

430 Schoolyards and playgrounds need a fence that will restrain children from darting into the path of traffic; reservoirs or power plants must have fence that firmly dissuades intruders. Write for booklet *Your Fence* to the Cyclone Fence Div., Dept. B-1095, Waukegan, Ill.

New Pump Bulletin

431 The Byron Jackson Co., Los Angeles 54, Calif., has issued a new illustrated bulletin describing its Deepwell pumps for installation in wells from 6 to 24 inches or larger. Ask for Bulletin No. 49-5000.

Free Samples for Uniforms

432 Samples of the worsteds and woolens used to make uniforms for the New York City police will be sent to municipal officials without cost by American Woolen Co., Department 6, 225 Fourth Ave., New York 3, suppliers of all the fabrics for New York's Finest.

Pressure Grouting

433 The work of the Presscrete Co., Inc., 243 Graybar Bldg., New York 17, N. Y., includes structural repairs, soil stabilization to prevent or rectify structural settlement, ground-water control, foundation strengthening, roof supporting, and shaft stabilization.

Road and Street Equipment

434 Among the machines described in Bulletin No. 144 from the Meili-Blumberg Corp., Box 110, New Holstein, Wis., are a tilt-bed trailer, crane hook, backfiller, front-end loader, power grader, street marker, bulldozer, snow plow, highway marker, power sweeper, and the Maintainer.

Automatic Valves And Remote Controls

435 Condensed Catalog No. 49 from the Cla-Val Co., P. O. Box 949, 1600 Orange St., Alhambra, Calif., describes the Hy-Trol valve, Power-Trol valve, and float, altitude, pressure-reducing, pressure-relief, and no-slam check valves, as well as manual, solenoid, float, and float chamber controls.

Something About Turf

436 F. H. Woodruff & Sons, Inc., Milford, Conn., goes along on the theory that turf is good in proportion to the amount of effort and sense that go into the making and maintenance, and provide for you one easy way of achieving good turf—a booklet that gives a quick synopsis of what to do and when.

Get Rid of Roots in Sewers

437 Rooto is a chemical compound that destroys roots flush with the sewer crock and sears their ends to prevent or stunt any future growth. The product, manufactured by the Rooto Corp., 1333 Dime Bldg., Detroit 26, Mich., may be used for main sewers or laterals.

Self-Lifting Paving Breaker

438 The Le Roi-Cleveland 52AJ Air-Jac paving breaker uses line air pressure to lift the 80-pound-class breaker in order to minimize operator fatigue. Ask for Bulletin RD4, the Le Roi Co., 1700 South 68th St., Milwaukee 14, Wis.

Effective Control Of Poison Ivy

439 A bulletin on poison ivy control is available by writing to The Milburn Co., 3246 E. Woodbridge St., Detroit 7, Mich., manufacturer of dermititis preventative creams and liquids — one of which immunizes the skin against poison ivy for from 6 to 8 hours. This protective coating washes off with soap and water.

One Spreader for Many Jobs

440 The Highway Model E ice control unit made by the Highway Equipment Co., Inc., 629 D Avenue, N.W., Cedar Rapids, Iowa, spreads sand and cinders for ice control, calcium chloride for dust control, chips and sand over newly laid oil or blacktop in seal coat work, commercial fertilizers. Write for literature.

Pump Handles up to 15,000 gph

441 The gasoline engine driven pump made by the Homelite Corp., 109 Riverdale Ave., Port Chester, N. Y., handles anything from seepage to 15,000 gallons per hour. It doesn't clog while pumping solids, is self-priming, has automatic seepage control, and a guaranteed 28-foot suction lift. Write for a copy of the new bulletin on the Carryable pump.

One Machine Digs, Grades, Backfills

442 The 4-wheel-drive Payloader with power steering, 1½-cubic-yard bucket capacity, and speeds up to 24 mph, digs, grades, levels, spreads, skims, strips, and backfills. Write for literature about this or smaller models to the Frank G. Hough Co., 710 Sunnyside Ave., Libertyville, Ill.

Is Your Municipality Protected Against Fire?

443 Peter Pirsch & Sons Co., Kenosha, Wis., builders of America's first all-powered aerial ladder truck and first 100-foot aerial ladder, will send you information about these mechanisms and its hydro-mechanical tractor-trailer aerial ladder trucks.

Wet Leaves Are a Traffic Hazard

444 Wet leaves blanketing streets and roads can prove a serious hazard to the motorist. The Egan Leaf Collector, which can be temporarily installed on any truck and just as easily removed, shreds and compresses leaves into a small space. The unit handles dry leaves as well as wet. Write the Deephouse Equipment Co., Inc., Leaf Collector Div., 162 Farmington Ave., Berlin, Conn.

(Please turn to page 23)

BE READY...

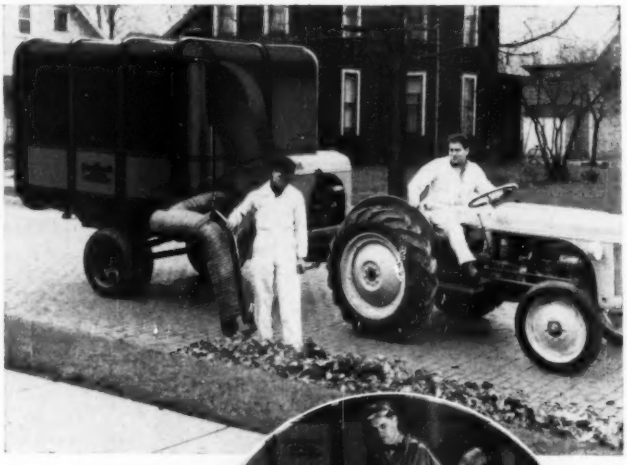
...for the Fall leaf problem

AVOID CLOGGED SEWERS AND SLIPPERY PAVEMENT WITH Good Roads MACHINERY **LEAF COLLECTOR**

If you are ready with a Good Roads Leaf Collector when the leaves begin to fall, you can eliminate the dangerous leaf nuisance efficiently, economically, and quickly.

The two-man-operated Leaf Collector inhales leaves and in the process shreds them into small particles. These chopped leaves are known as "COMPOST," a natural fertilizer which will be begged for by many citizens, for use in their gardens.

This feature is important in cities where there is too great a distance to travel to the dumping site.



FEATURES

FLEXIBLE INTAKE HOSE . . . . . easily maneuverable into driveways, under and around autos, in gutters, around corners and catch-basins and under cross-walks.

RUGGED ROTOR BLOWER ASSEMBLY . . . inhales and pulverizes wet or dry leaves in one operation.

HYDRAULIC SYSTEM . . . . . operates independently . . . makes hook-up and dumping almost instantaneous.

SPACIOUS LITTER CARRIER . . . . . holds blocks and blocks of pulverized leaves and debris.

SPECIAL FILTERS . . . . . keep surrounding air clean and dust-free.

The rubber tired snoot for all purpose leaf collecting (circular illustration) and the simple Hanger Arm unit (top) are standard equipment.

CONTACT YOUR GOOD ROADS DEALER or the factory for further detailed information or a demonstration.

GOOD ROADS MACHINERY CORP. **MINERVA, OHIO**

Stop--Check and Mail

Use the Coupon on Page 21

Working Parts Accessible In This Fire Hydrant

445 The A. P. Smith Mfg. Co., East Orange, N. J., makes a fire hydrant whose working parts are easily removed from the top. Other features are frangible couplings for collision protection, maximum flow through large stand pipe areas, tapered frost-proof barrel, compression type valve.

Iron or Wire Fencing

446 A catalog describing chain link wire fence, plain or ornamental iron fence, all-steel settees, and entrance gates, may be obtained from the Stewart Iron Works Co., Inc., 1621 Stewart Block, Cincinnati 1, Ohio.

Pick Litter Up Quickly

447 The Belmar Litter Picker is a 12-pronged instrument for picking up debris from lawns or walks. It has a stripper head which protects the points and, as its main function, strips the picked debris off the points. Write the Belmar Wheel & Machine Co., 1707 F St., Belmar, N. J.

Pole Line Equipment

448 Tel-E-Lect Products, Inc., 10001 Minnetonka Blvd., Minneapolis 16, Minn., will send you information on its pole line equipment that can be installed on your trucks. These include bolt-on utility cabinets and material racks that fit to a flat-bed truck; derricks for front or rear mounting on any trucks, and a pole hole digger that mounts on the front of any truck.

Check on Efficiency Of Water Distribution System

449 A Pitometer survey is a completely objective check-up to determine the present efficiency and ability to handle future demands of your water distribution system. The results of this survey are a determination of how to conserve available supply, decrease operating costs, and increase revenue. Write the Pitometer Co., 50 Church St., New York 7, N. Y.

Rotary Dryers, Kilns, Coolers

450 The Hardinge Co., Inc., 240 Arch St., York, Pa., has just released a 32-page catalog on its complete line of Ruggles-Coles rotary dryers, kilns, and coolers. The kilns find particular use in the recalcining of lime sludge. Ask for Bulletin No. 16-D.

Hose Assemblies For Hydraulic Equipment

451 The Mulconroy Co., 54th and Jefferson Sts., Philadelphia 31, Pa., describes in an 8-page brochure its hydraulic hose assemblies ready to install on any type of hydraulically operated equipment.

Colored Traffic Markings

452 Make the traffic lane markings used on your streets command the attention of the motorist by using different colors. You can get white, medium yellow, orange, bright red, or black from Hanline Bros., Baltimore, Md., in its well-known Zonemark traffic paint.

Safety in Construction

453 *The Manual of Accident Prevention in Construction*, published by The Associated General Contractors of America, Munsey Bldg., Washington 4, D. C., is a 264-page exposition of safety in construction work. About 100 photographs show the costly results of incorrect and unsafe practices. The manual sells for $3.00.

Duster-Blower Covers 10 Acres per Hour

454 The Turbulent Air sprayer-duster manufactured by the Buffalo Turbine Agricultural Equipment Co., Inc., Gowanda, N. Y., blows either spray, dust, or a combination of liquid and dust and does it at the rate of 10 acres per hour. The turbulent air atomizes and blows sprays to provide full penetration into thick leaf cover.

Pumps for Water Departments

455 The De Laval Steam Turbine Co., Trenton 2, N. J., will send you Catalog 10-7-H describing its line of pumps engineered to provide efficient water to your municipality's citizens. This company also makes turbines, helical gears, centrifugal blowers and compressors, worm-gear speed reducers and Imo oil pumps.

Locate Leaks without Digging

456 The Geophone detects by sound the exact location of leaks in water or steam pipes. No more expensive surveys, unnecessary excavation. Write the Globe Phone Mfg. Corp., Dept. Y, Reading, Mass.

For Road Paving or Repair

457 Melting kettles, asphalt tool and surface heaters, road oil distributor burners—all are necessary for building and maintaining roads and streets. Write for *Highway Construction and Maintenance* catalog, the Hauck Mfg. Co., 112-122 Tenth St., Brooklyn 15, N. Y.

Portable Incinerator For Streets, Parks, Playgrounds

458 Aeroil Products Co., Inc., 5 Wesley St., South Hackensack, N. J., is manufacturing a portable oil-burning incinerator that eliminates the time waste of trucking rubbish to disposal areas. And the oil burner makes it possible to burn wet and damp materials as well as dry waste. Ask for leaflet No. 647A.

Fire Apparatus

459 The Mack Mfg. Corp., Fire Apparatus Div., Long Island City 1, N. Y., will send you information on its triple combination pumpers in capacities from 500 to 2,000 gallons, squad and hose cars, and aerial, city service, and quadruple combination ladder trucks.

Materials for Uniforms

460 A sample brochure of the uniform fabrics made by Metcalf Bros. & Co., 45 E. 17th St., New York, N. Y., may be obtained by writing to the company. These fabrics, durable and good-looking, are specially suited for police and fire departments.

Catch Basin Cleaner Has Pneumatic Controls

461 The Netco catch-basin cleaner, operated by pneumatic controls, has a bucket powerful enough to remove sticks, bottles, wire, and other such debris—and yet the bucket can operate through an opening as small as 16 inches. The hoisting capacity of the bucket is 1,500 pounds. Write for details to the Netco Div., Clark-Wilcox Co., 118 Western Ave., Boston 34, Mass.

Refuse Disposal a Problem?

462 Bulletin No. 217-A from the Nichols Engineering & Research Corp., 70 Pine St., New York 5, N. Y., describes the advantages of refuse disposal by incineration. No more health hazards from an open dump, or loss of huge areas tied up by sanitary fills.

Improved Garbage Disposal Unit

463 The Brooks Load Lugger, a system of detachable truck bodies for garbage and refuse handled by a single truck, provides protection against wind, rodents, insects, or fire. Sliding doors facilitate refuse insertion. Write the Brooks Equipment & Mfg. Co., 1954 Davenport Rd., Knoxville 1, Tenn.

For Traffic Safety

464 Southern Signals, Inc., Shreveport, La., will send you illustrated literature that shows the role of traffic signals, signal controls, and crossing gates in maintaining a low-accident municipality. Each performs a different function in controlling vehicular and pedestrian traffic.

Fire Apparatus For Large or Small Communities

465 The Seagrave Corp., Columbus, Ohio, makes a variety of pumpers for large or small communities, both open and canopy cab designs. All models have pump instrument panels which incorporate the necessary controls and gauges, and the designs all include plenty of storage space for equipment.

Advantages of Aluminum Reflectors

466 Alzak aluminum reflectors, in specular and diffuse finish, do not chip, spall, or peel. Cleaned regularly, they last indefinitely. For information about Alcoa aluminum, write the Aluminum Co. of America, 1859J Gulf Bldg., Pittsburgh 19, Pa.

New Leaf, Trash Burner

467 The Tarrant Mfg. Co., East Ave., Saratoga Springs, N. Y., has introduced a leaf and trash burning cart that disposes of 21 cubic feet of refuse in a single handling —no more hauling, emptying, or disposing.

Street Sweeper Wire

468 The Johnson Steel & Wire Co., Inc., Worcester 1, Mass., will send you data about its Roadmaster street sweeper wire. The product is specially processed for high fatigue against breakage, and is available in all standard sizes.

Fast Hole Boring

469 The Ka-Mo drills, manufactured in diameters from 3 to 24 inches and in 4-foot sections that hook into a continuous boring tool as the work progresses, bores horizontal holes under streets, lawns, or foundations. The same equipment may be used for boring vertical holes for poles or posts. Write for data to Ka-Mo Tools, Inc., 2121 S. Troy St., Chicago 23, Ill.

Filter Plants

470 The efficiency and economy of the filter plant is one of the important factors in the system. It can mean the difference between debit and credit in the department, between health and disease in the community. Investigate the equipment made by the Roberts Filter Mfg. Co., 660 Columbia Ave., Darby, Pa.

Street-Sign Kit Used Over and Over

471 The Mak-A-Sign Co., P. O. Box 2290, Birmingham, Ala., will send you a descriptive folder of its kit for making street signs. The outfit consists of stencils into which are inserted the letters desired for names on curb, sidewalk, wood or concrete posts, or signboards; one kit is used repeatedly.

(Please turn to page 26)

STEEL for
Every Municipal Need

Shipped Quickly from Ryerson Stocks

Call Ryerson for the steel you need and you'll find we're always on the job.

Every day, cities and towns from coast to coast are being expertly served by the network of thirteen great Ryerson plants. Each plant has large and diversified stocks. Each plant is equipped to accurately cut or otherwise prepare your steel to exact specifications.

Under the Ryerson simplified purchasing system you save time. One order and one invoice quickly cover a whole group of steel requirements. Ryerson specialists, whose recommendations are backed by more than a century of practical experience, will gladly assist you on any problem of application or fabrication.

For highest quality carbon, stainless, or alloy steels—any kind, shape, or size—contact your nearest Ryerson Plant.

PRINCIPAL PRODUCTS

BARS—Carbon & alloy, hot rolled & cold finished.
SHAFTING—Cold fin., ground & polished, etc.
STRUCTURALS — Channels, angles, beams, etc.
TUBING—Seamless & welded mechanical & boiler tubes.
STAINLESS — Allegheny plates, sheets, etc.
PLATES—Sheared & U. M., Inland 4-Way Floor Plate.
SHEETS—Hot & cold rolled, many types.
MACHINERY & TOOLS—For metal fabrication

RYERSON CERTIFIED STEELS

RYERSON STEEL

JOSEPH T. RYERSON & SON, INC. PLANTS AT: NEW YORK • BOSTON • PHILADELPHIA • DETROIT • CINCINNATI
CLEVELAND • PITTSBURGH • BUFFALO • CHICAGO • MILWAUKEE • ST. LOUIS • LOS ANGELES • SAN FRANCISCO

SAN FRANCISCO, CALIF.

A Day With the Repair Crew

How the well-dressed man looks, equipped for work in a sewer. He wears a Mine Safety Appliance Company helmet and electric lamp; he also wears a Davis Emergency Equipment Company safety belt with rope; rubber boots and sack protect clothing when going down the manhole. The white belt carries the storage battery for the cap lamp.

IN THE San Francisco, Calif., Bureau of Sewer Repair, work starts at 7 a.m., when the general foremen arrive to get the orders ready for the crews arriving at 8 a.m. Before 8 o'clock, many field crews ring in for material, additional instructions, or assignment to a new location. At 8 a.m. Auto Eductor crews are dispatched to their regular districts for catch-basin cleaning work. Flushing crews go out on complaints, investigations, or their regular sewer maintenance. At 10 a.m., these men ring in for further instructions. In general, this routine is repeated in the afternoon.

During the day, the clerk answers telephone calls from citizens reporting holes in the street, plugged-up catch basins, sewers not functioning, and articles dropped into catch basins or through the plumbing fixtures, such as keys, rings, false teeth, and precious stones. Many of these articles are retrieved and returned.

At 4:45 p.m., the Eductor and flushing crews report to the office with the results of the day's work. These reports are tabulated and distributed to the assistant superintendent or general foreman responsible for that particular phase of the work. By this time, the night crew has reported and its instructions have been issued. Five o'clock sees the day officially closed. Complaints coming after these hours and until 12:30 a.m. are cared for by the night crew. After 12:30 a.m. and until 8 o'clock the following morning the material truck driver is on call for routine complaints. Complaints of a more serious nature are referred to the assistant superintendent or general foreman on call.

The Bureau of Sewer Repair is under the direction of Emile F. Muheim, Superintendent. It operates as part of the Department of Public Works, under H. C. Vensano, Director.

For emergency night jobs, the crews use portable Clarke lighting units powered by a gas engine and generator.

Here are the lights set up for a typical job on a San Francisco street. The Homelite pump keeps the excavation dry. The portable light units can be angled to make the work visible.

In a city the size of San Francisco portability pays big dividends. Here is a Flexible sewer rod set which is on a trailer attached to a truck with emergency lighting and other equipment.

The crew, on another typical job, puts the sewer-cleaning unit in service.

This Tells You All About FLINK Tail-Gate Spreaders

Nationwide Sales-Service

Alleg'y Eq. Corp., Pitts.
C. J. Blackwell, Horseheads, N. Y.
R. W. Bleiler, Eq. Co., West Hartford, Conn.
J. F. Brittain, Erie, Pa.
Credle Eq., Utica
Dyar Sales & Mach. Co., Cambridge, Mass.
Eastern Eq. Sales, Springfield, Mass.
Files & O'Keefe, Portland, Maine
Gen. Supply Eq., Baltimore, Md.
Hedge-Mattheis Co., Providence, R. I.
Hiway Co., Harrisburg
Laurion Eq., Montreal
Municipal Mach., Coram, New York
M'fd'd Tractor Eq., St. John's, N. B.
No. Jersey Eq., Newark
Rish Eq., Charleston
Rish Eq., Clarksburg
Rish Eq., Richmond
Rish Eq., Roanoke
Tri-State Eq., Wilmington
G. W. Whitehead, Buffalo
Choctaw, Memphis, Tenn.
G. W. Clements, Columbus, Ohio
Conwell Eq., Davenport, Ia.
Dealers Eq., Peoria, Ill.
4-Wheel Drive Auto Co., Clintonville, Wis.
C. C. Fuller, Chicago, Ill.
K. C. Giffen, Toronto, Ont.
H'way Eq., Lincoln, Neb.
Korte Bros., Ft. Wayne, Indiana
Malotte Co., Petersburg, Indiana
Nat'l Eq., Louisville, Ky.
Pigott T & T, Winnipeg, Manitoba
Rish Eq., Cincinnati
Tulsa Corp., Tulsa, Okla.
Rosenwald-Cooper, St. Paul
J. A. Sugg, Morganfield, Kentucky
Telford Eq., Lansing, Michigan
Telford Eq., Detroit, Michigan
E. W. Werner, Mt. Vernon, Illinois
Wis. Oil Eq., Oshkosh, Wisconsin
Wis. Oil Eq., Kan. City, Missouri
A. H. Cox, Seattle, Wash.
4-Wheel Drive Pac., Los Angeles, Calif.
4-Wheel Drive Pac., San Francisco, Calif.
Kimball Eq., Salt Lake City
Liberty Truck, Denver
Mont. Powder Eq., Helena
Western Eq., Boise, Idaho

And why they have been accepted as standard spreading equipment all over America

FOR ICE CONTROL AND ROAD WORK

Thousands of Transportation Companies, States, Cities, Counties and Townships, all over the country, use FLINK Tail-Gate Spreaders for fast, efficient spreading with present dump truck equipment. This self-feeding, hydraulic-drive spreader handles all types of granular material — sand, chips, cinders, salt, calcium chloride, chat, etc.,—wet or dry, even-

ly and without bridging or clogging. Quickly adjustable to spread backward or forward. Forward spread for ice control. Backward spread for re-surfacing and seal coating, so tires ride on material spread. Spreads from width of truck to width of street—thick or thin. One FLINK equipped truck will do the work of several ordinary trucks.

FITS ANY DUMP TRUCK

FLINK Spreaders do not limit trucks to spreading only. Fits your present truck as a replacement end-gate so truck can be used for all hauling purposes. Doesn't interfere with dumping. Installs in a few hours without special tools. Removes from truck in same manner as regular end-gate.

THROWS AT LOW LEVEL

FLINK introduced the principle of throwing at low level —with material thrown forward and down toward base of wheels — providing traction for truck and making it possible to cover both lanes without getting material on parked, passing or following cars — especially valuable in ice control. Driven with the finest hydraulic equipment, proved by extensive tests at Armour Research. This hydraulic power is controlled by the driver in the truck cab. May be thrown in and out of action without stopping. Automatic gate control. Spreads at 2 to 30 miles an hour. Covers more surface with less material in less time—to get more hours of productive work from truck and driver. Reduces number of trucks and men.

MORE EFFICIENT SPREAD

The patented feeder rotors and distributor blades of the FLINK Spreader assure a positive, uniform spread. No thick or thin spots. Material goes farther because it is spread in proper quantity only where needed.

FLINK DEPENDABILITY

Long lists of users, nationally recognized for their care in purchasing equipment, are evidence to the outstanding dependability, economy and efficiency of the FLINK Spreader. Established in 1929, the FLINK Company is represented throughout the country by the best known jobbers in the ice control field. Prove to yourself the superiority of the FLINK Tail-Gate Spreader. Contact your nearest FLINK representative or the Factory.

FLINK CO.

Dept. 1-S

STREATOR • ILLINOIS

Free Literature

Use the Coupon on Page 21

Badges

472 C. G. Braxmer Co., Inc., 216 E. 45th St., New York 17, N. Y., will send you a circular illustrating badges for police, fire, and other municipal officials. The company has been making standard badges since 1879.

Gasoline Engines

473 The Briggs & Stratton Corp., Milwaukee 1, Wis., will send you data on its line of air-cooled, 4-cycle, gasoline engines for powering all types of machinery and appliances.

Pipe and Joint Are One

474 The only field equipment necessary to make a Universal cast iron pipe bolted joint is a ratchet wrench, because the pipe and the joint are one piece. There is no caulking or pouring of lead, no gaskets, no bell holes to dig. Write for a catalog to the Central Foundry Co., 386 Fourth Ave., New York 16, N. Y.

Find Valve Boxes Easily

475 The Aqua valve box locator has constant top-view reading without stooping — the operator does not become fatigued. This mechanism is guaranteed to operate accurately through any type of paving even when covered by ice or snow. Write the Aqua Survey & Instrument Co., 2513 Leslie Ave., Norwood, Cincinnati 12, Ohio.

Planning a Meter Repair Shop?

476 The Badger Meter Mfg. Co., Milwaukee 10, Wis., manufacturers of water meters, will send you its Chart No. 696, a practical floor plan for a large meter repair shop. Write also for information on the meters designed for warm climates and those for cold climates. Badger makes meters up to 12-inch sizes.

Standardized Conveyors

477 The big advantage of the standardized conveyors made by the Barber-Greene Co., Aurora, Ill., is that since erection is little more than a matter of bolting the pre-engineered units together, the system may be shortened, lengthened, or moved as the needs change.

Ice Control— A Matter of Life and Death

478 When icy roads provide no traction, a stop signal can be a death trap. The spreader manufactured by the Baughman Mfg. Co., Inc., 291 Shipman Rd., Jerseyville, Ill., spreads in 8- to 30-foot widths at 25 mph. A built-in exhaust heater keeps the material and conveyor chain in working condition in the lowest temperatures.

Engineering Problems Solved With Aerial Preliminaries

479 Not only is valuable time saved by aerial topographic mapping, but the problem of finding competent ground survey personnel is eliminated. Ask for information about the Brock Method of using glass plate negatives for maximum dimensional accuracy to the Aero Service Corp., 236 E. Courtland St., Philadelphia 20, Pa.

Two Features on Snow Plow

480 The Walsh snowplow has built-in wear shoes set flush with the cutting edge to prolong the blades' life. It also has a tripping subframe at the bottom of the moldboard. The Walsh-Sargent Trip-One-Way has two subframes, allowing the plow to jump obstacles. Write the Walsh Holyoke Boiler Works Div., Continental Copper and Steel Industries, Inc., Appleton St., Holyoke, Mass.

(Please turn to page 30)

Only A. O. Smith gives you ONE source of

UNDIVIDED RESPONSIBILITY

with SMITHway Vertical Turbine Pumps

All major pump parts of A.O.Smith Pumps are designed together, built together, to *work* together—your assurance of years of dependable, low-cost service.

When you choose an A. O. Smith Pump, you know it is *all* A. O. Smith from motor to strainer—SMITHway all the way down. You can be sure that the sum of A. O. Smith's 75 years of experience has been engineered into *every* pump part, to give you a superiority you can depend on under the toughest operating conditions.

Weight Where Weight Belongs. A. O. Smith discharge-head assemblies are built of heavy steel plate, formed and welded into the strongest, most compact design. Support for the driver and suspended assemblies is rigid, vibrationless, yet easily accessible. Bowls are precision-machined from hard, close-grained cast iron, fitted with smooth, streamlined diffusion vanes contoured for maximum efficiency. Bronze impellers, closed or semi-open, are dynamically and hydraulically balanced.

"Tailor-Made" for Each Job. Complete interchangeability of major assemblies lets you select the right combination of driver, column pipe, lubrication, and impeller to fit each pumping application. You have an application-engineered pump exactly right for each job.

Send the coupon for complete information!

Write or wire for details of the A. O. Smith Vertical Turbine Pump Distributor's Franchise, still available in a few territories. Send the coupon for our colorful illustrated Pump Bulletin.

A.O.Smith

VERTICAL TURBINE PUMPS

Atlanta 3 • Chicago 4 • Houston 2 • Los Angeles 14
Dallas 1 • New York 17 • Midland 5, Texas
Philadelphia 3 • Seattle 1 • San Francisco 4
Pittsburgh 19 • Tulsa 3
International Division: Milwaukee 1

A. O. Smith Corporation, Dept. AC-1049
Milwaukee 1, Wisconsin

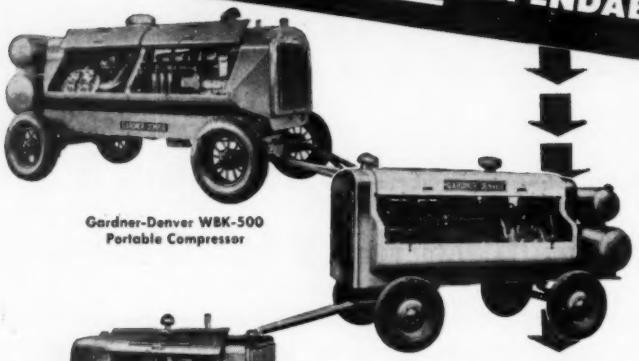
Without obligation, send us your illustrated descriptive bulletin on A. O. Smith Vertical Turbine Pumps.

Name_____

Street or Route_____ Box_____

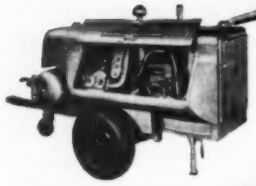
City_____ State_____

AN ALWAYS DEPENDABLE AIR SUPPLY . . .



Gardner-Denver WBK-500 Portable Compressor

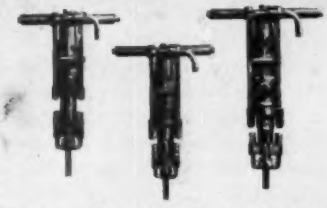
Gardner-Denver WHF-210 Portable Compressor



Gardner-Denver WHD-105 Portable Compressor

No matter where you send a Gardner-Denver Portable Compressor, you can be sure of a steady, uninterrupted air supply. For regardless of climate or altitude, the complete water jacketing of all cylinders "weather-conditions" them against over-heating — and from cold, unlubricated starts in sub-zero weather. For complete information, write Gardner-Denver Company, Quincy, Ill.

. . . FOR THE RIGHT AIR TOOLS



There's a Gardner-Denver Sinker that's "correct" in size and power for every type of ground. Shown here are the three most popular models: the high-speed S45 for secondary drilling or medium rock—the S55, most popular 55-pound sinker on the market—the S73, 67 pounds of speed and power for deep holes or the hardest formations.

Powerful Gardner-Denver B87 Paving Breaker has exclusive throttle safety latch — can be easily moved around the job without shutting off the air. Easily converted to a sheeting driver.

The feed of the new Gardner-Denver URM99 Wagon Drill is powered by a five-cylinder radial air motor. Designed for speedy, six-foot steel changes; carries a 3½ in. or 4 in. bore derrick drill. Your operator will like the ease of control.

The Gardner-Denver T23 Backfill Tamper is balanced for easy "walking" over the fill — has valve and exhaust that won't "freeze" in cold, damp weather — contains integral oil reservoir that assures complete lubrication.

Gardner-Denver Model 28 Clay Digger makes digging easy in clay or hardpan—can also be equipped with axe blade for trimming or cutting timber, or with mail point or chisel for light demolition work.

GARDNER-DENVER SINCE 1859

Gardner-Denver Company, Quincy, Illinois

In Canada: Gardner Denver Company (Canada) Ltd., Toronto, Ontario

It's not how well they start
but WHERE THEY FINISH
THAT COUNTS

SEE REGULATIONS ON OTHER SIDE
INSERT ONE COIN AT A TIME
TURN HANDLE TO STOP AFTER EACH COIN
FREE PARKING ON SUNDAYS
MI-CO METER

Most parking meters perform well at the start. But how well they perform as time goes by, say five to ten years from now, is important, too. Will they be ready for the junk pile, or will they be earning as much then as when they were new?

It's the five to ten year period that really proves a parking meter. And if a meter manufacturer can show by actual records rather than by projected figures that his meter will earn as much or more in five to ten years after installation, and that maintenance costs will still be negligibly low, then it's a safe bet. You don't take chances when you buy on such records.

Records of installations from Alaska to Florida prove the dependability of MI-CO Meters, and show that the earning capacity of this meter does not diminish over long periods of time. These records prove, too, that the maintenance expense of MI-COs, even after ten years of service, is so low it's scarcely a consideration.

Before you buy, you'll be wise to investigate thoroughly the five to ten year records of parking meters. Then judge the merits of a meter on actual reports, not on unsubstantiated claims or projected figures. MI-CO Meters will be glad to supply complete data on installations new and old, and send you a record of the earnings of MI-CO Meters in comparison with other makes.

MI-CO METERS, 231 Court St., COVINGTON, KY.

Division of The Michaels Art Bronze Co., Inc.

CYCLONE Non-Climbable Fence positively keeps outsiders out

CYCLONE Non-Climbable Chain Link Fence is just what the name implies. The A-shaped arms, carrying five strands of barbed wire, extend out on *both* sides of the fence, making it almost impossible for an intruder to get over.

When you stop to consider the tremendous damage that a criminal or mentally-deficient person can perpetrate around a water reservoir or power plant, you'll see that it's the soundest kind of planning to protect such a project from the start with Cyclone Non-Climbable Fence.

And for other projects demanding lesser degrees of protection, there's Cyclone Invincible and Cyclone Safeguard Fence. They are all made from heavy, special-analysis steel wire, galvanized *after weaving* for maximum life.

Cyclone Fence, erected by trained Cyclone crews, is "engineered protection" for your property. If you have a project in the discussion stage, contact your nearest Cyclone sales office; they're in most principal cities. Meanwhile, write for our free, 32-page booklet on fence.

CYCLONE FENCE DIVISION
(AMERICAN STEEL & WIRE COMPANY)
WAUKEGAN, ILLINOIS - BRANCHES IN PRINCIPAL CITIES
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

NO JOB IS TOO LARGE—NO JOB IS TOO SMALL FOR CYCLONE

U·S·S CYCLONE FENCE

CLIP THIS COUPON SEND IT TO—

Cyclone Fence, Waukegan, Ill., Dept. B-109
Please mail me, without obligation, a copy of "Your Fence."

Name.....

Address.....

City..... State.....

USS
UNITED STATES STEEL

Check and Mail

Use the Coupon on Page 21

Kitchen Waste Disposal Cuts Costs

481 The American Kitchens Disposer garbage grinder has a hinge in the center of each pulverizer arm that prevents jamming even on contact with metal, and the additional vertical shredders minimize trouble to the system. But the big advantage to these disposers made by the AVCO Mfg. Corp., Connersville, Ind., is the big savings in garbage collection and health department costs.

Alarm Silencer Resets Itself

482 The Automatic Control Co., 1015 University Ave., St. Paul, Minn., is distributing Bulletin No. 7400, which describes its Autocon Model ABS alarm silencer. This mechanism automatically resets itself when the alarm circuit is cleared.

Water Flow Data

483 The Foxboro Co., Foxboro, Mass., has begun a series of service publications for public utility men and engineers. The first in a series, intended as practical tools for use in planning, estimating, and specification preparation, is entitled *Parshall Flume and Weir Flow Recording Controller* and contains dimensional diagrams, tables of flow values, and specifications for standard instruments for flow-measurement or control.

Synchronous Motors

484 The Ideal Electric and Mfg. Co., Mansfield, Ohio, illustrates in Bulletin No. 502 its line of synchronous motors from 20 to 5,000 hp in both low and high speeds. These motors are of use when fine regulations of speeds are important or where a high-power factor is desired.

Removes Snow, Cleans Streets

485 The Cyclone Snow-Blower has a snow chute that rotates 30 degrees. Hydraulically operated, it accurately loads trucks or blows the snow out of the path. Tractor mounted, the Cyclone may have a rotary broom substituted for the blower to serve for street cleaning during the summer. Write the Transport and Supplies Co., Ltd., Quebec, Canada.

Fire Pumpers

486 The fire department pumpers from the Ward LaFrance Truck Corp., Grand Central Ave., Elmira, N. Y., are all equipped with a Waterous split housing pump that provides surplus gallonage exceeding rated capacity. The pumpers have flat horizontal booster tanks, and high hose capacity. Write for Bulletins 75-85.

Planned Street Lighting

487 The OV-20 mercury vapor street lighting luminaire operates the mercury lamp horizontally, without the use of magnets. The hinged glassware holder provides for easy maintenance. Write for brochure B-3970 to the Westinghouse Electric Corp., P. O. Box 868, Pittsburgh 30, Pa.

Filter Medium for All Needs

488 The Palmer Filter Equipment Co., 822 E. 8th St., Erie, Pa., representing the Anthracite Equipment Corp., Anthracite Inst. Bldg., Wilkes-Barre, Pa., will send you information and recommendations for the use of Anthrafilt for the removal of bacteria, microorganic matter, taste, odor, and fibrous material.

Rate Controllers

489 In one municipality, a Simplex Type B rate controller has been in operation for 35 years, and, according to the water department official in charge, it is as efficient as when new. Write the Simplex Valve and Meter Co., Dept. 9, 6789 Upland St., Philadelphia 42, Pa., for data.

Snow Master

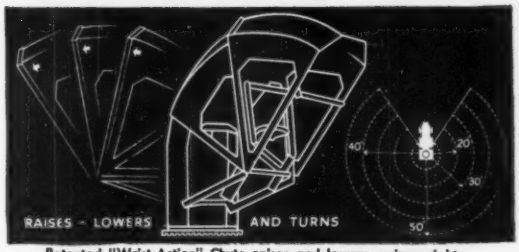
with EXCLUSIVE Wrist-action chute and long-range Reversible Casting Turbine.

The Snow Master has *proved* its superiority under the severest conditions—on highways, airports and city streets. *Engineered for the job,* the Sicard Snow Master has won its leadership in action through 25 years of *superior* performance.

The Snow Master's twin augers cut an eight-foot swathe through snow, slush and even ice . . . clean from curb to curb. Finger-tip controls instantly adapt the equipment to any conditions.

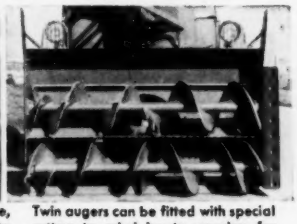
On crowded city streets, hangar aprons and around buildings the *exclusive* patented "Wrist-Action" Chute precision-casts to any desired spot, or pack-loads trucks to capacity. For highways, runways and other open areas, the unique Casting Turbine propels snow up to 150 feet on either side—eliminates banks and back-drifting. In city or country, only Snow Master has the versatility to handle your *every* snow clearance problem.

For name of your nearest distributor, write to Sicard Industries Inc., manufacturers of the Snow Master Junior, the Snow Master; the Sanivan and the Master Flusher.



Patented "Wrist-Action" Chute raises and lowers, swings right or left on a 220° arc. Snow can be thrown from three to 50 feet into moving trucks or open spaces, leaving intersections clear.

For highway or airport clearance, casting turbine propels snow up to 150 feet on *either* side. Operations can be switched *instantly* to loading chute, when desired.



Twin augers can be fitted with special cutters to grind ice to powder, for disposal through either chute or turbine. Exclusive equalizer bar prevents clogging.

SICARD INDUSTRIES INC.

SICARD

Plant: 753 W. Main St., Watertown, N.Y.
Branches: 30 Rockefeller Plaza, N.Y.C.
228 N. Lasalle St., Chicago, Ill.

here's how . . .

dozens of sanitation jobs can be completed swiftly and surely. Quick-acting HTH provides 70% available chlorine . . . in handy form for a wide range of uses all the way from disinfecting billions of gallons of polluted flood water to simple, routine sanitation chores. • For swift, on-the-spot chlorination — in emergencies or day-to-day duties — always reach for HTH. Keep it on hand for dozens of sanitizing purposes. Write for free copy of new 48-page manual — "Hypo-Chlorination of Water". Mathieson Chemical Corporation, Mathieson Building, Baltimore 3, Md.

Sanitation HTH . . . PH-Plus (Fused Alkali) . . . Liquid Chlorine . . . Chlorine Dioxide . . . Caustic Soda . . . Soda Ash . . . Bicarbonate of Soda . . . Ammonia, Anhydrous & Aqua . . . Dry Ice . . . Carbonic Gas . . . Sodium Chlorite Products . . . Sodium Methylate

Mathieson
SANITATION HTH

Sanitation HTH is available in cases of nine handy 5-lb. cans and in 100-lb. drums.

YEAR-ROUND VALUE from SNOW CLEARANCE DOLLARS

DEPENDABLE ANSWER to LARGE SCALE SNOW-REMOVAL

CYCLONE SNOW BLOWER

costs less . . .
does the work of heavier equipment . . .
provides a versatile tractor for summer use

INITIAL COST . . . approximately ONE-FOURTH of heavier equipment . . . yet gives *big* equipment performance . . . Unmatched economy of up-keep and operation . . . a saving of 35% to 50% per cubic yard . . . Any B or C class mechanic can maintain the "CYCLONE" unit . . . Wider risk distribution.

Not only does a fast and economical job of snow clearance, but the "CYCLONE" unit will keep your snow removal dollars working all summer long.

MEDIUM SIZE . . . purposely designed to tackle all snow conditions . . . will work easily in and around confined areas where bigger equipment in handicapped . . . Unequalled manoeuverability and adaptibility.

AUTOMATIC RUDDER, exclusive feature of the "CYCLONE" Snow-Blower . . . mounted directly on the snow-blowing attachment *to relieve steering strains.*

CRAWLER ATTACHMENT . . . will increase by 5 or 6 times the already adequate traction of the "CYCLONE" unit . . . no known snow-blower can claim such traction area compared with size and weight.

CYCLONE BLOWER assemblies may be purchased separately by present owners of Ford or Ferguson tractors.

Contact your nearest distributor.

Triad Tractor & Implement Corp., P. O. Box 90, Utica, N. Y.
The Nicoll-Talcott Corporation, P. O. Box 308, East Hartford 8, Conn.
Romy Hammes Tractor Sales, Inc., 1000 Hobbie Avenue, Kankakee, Ill.
Great Lakes Tractor & Equipment Co., 2100 E. Maple Rd., Birmingham, Mich.
Northwest Tractor & Equipment Co., Inc., 419 N. Fifth St., Minneapolis 1, Minn.
Wisconsin Tractor & Equipment Co., 520 N. Main St., Fond du Lac, Wisconsin
Industrial & Farm Equipment, 742 West Front Street, Chester, Pa.
Farm & Industrial Tractor Corp., 171 Dawson Avenue, Glenfield, Pa.

Manufactured by Transport & Supplies Co., Ltd., Quebec, Canada

COMPARE THIS PERFORMANCE...

Loading Time 10-cu. yd. truck in 35 seconds

Loading Capacity 45 to 50 trucks (10 cu. yds.) per hour

Blowing Capacity Approx. 1300 cu. yards per hour, 8 to 10 tons per minute

Blowing Distance 100 to 150 feet

CHECK THESE FEATURES...

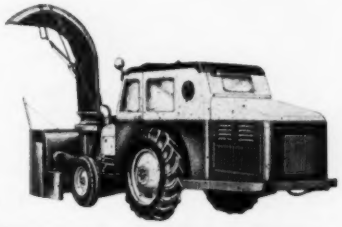
One-man operation

Separate Ford V-8 engine-driven blower

Detachable blower assembly

Hydraulically elevated hinge-type, rotative snow chute

All controls automatic, either hydraulic or electrical, fully operated from control panel in cab



For *Cleaner* Shaves

TRIPPING BLADE
Faster, cleaner plowing

Tripping blade about to strike obstruction

Here the section of blade swings back over obstruction

ZING! It's over and back in normal position

Yes, Sir! You can take that snow off clean and close when your trucks are equipped with Baker Snow Plows featuring the original sectional tripping blades. These devices, on all Baker reversible and one-way truck plows, permit high speed operation with the plow right down on the pavement, without fear of damage to plows, trucks, manhole covers or road surfaces. Sectional design of tripping blades minimizes snow by-pass due to tripping action, because any by-pass is limited to the narrow section affected.

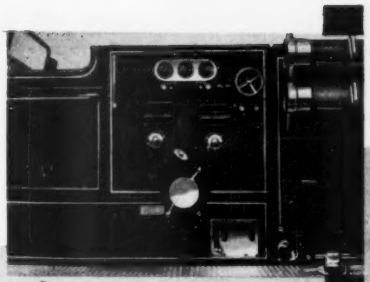
You can be sure with a Baker. Whether your needs are large or small, there's a Baker V type, reversible or one-way plow for any job and any truck — also available for wheel and crawler tractors and motor graders. So bring your snow problems to Baker — snow plow headquarters since 1908. The Baker Manufacturing Co., Springfield, Illinois.

COMPLETE NEW CATALOG

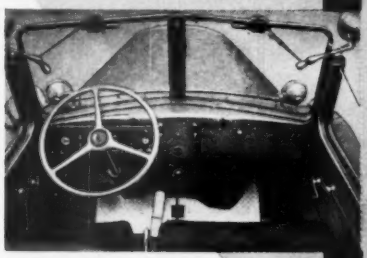
This 24 page catalog illustrates and describes the complete line of V, Reversible and One-Way Baker snow plows for all kinds and sizes of trucks. Write for Bulletin 1002.

BAKER **SNOW PLOWS SINCE 1908**

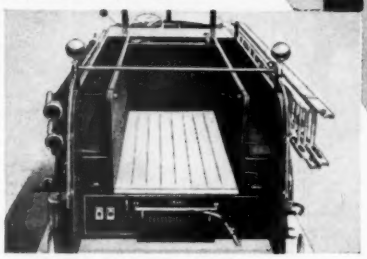
SPRINGFIELD • ILLINOIS



Mack pump controls are simple, compact, efficient. All gages, levers and connections are grouped together within easy sight and reach of operator.



Safety, comfort, convenience and visibility mark Mack driver accommodations. Note individual, adjustable driver's seat and handy, yet out-of-the-way location of parking brake.



Efficient body design assures quick accessibility to all equipment. Mack-built heavy-gage, all-steel body on Types 85 and 95 holds 1650 feet of 2½-inch hose; two side compartments hold 500 feet each of 1½-inch hose.

Mack Sets the Pace in Efficiency, too!

• Full fire apparatus efficiency is more than a matter of performance alone. Speed, power, pump pressures and capacities—these are important but more is needed. Skilled planning and workmanship are called for in every last detail of design.

From stem to stern, every Mack is designed and built for outstanding efficiency. Engines and pumps deliver full output without strain. Drivers' accommodations are arranged for maximum visibility, safety and ease of handling. All controls are easily reached and operated. Capacious hose bodies can be quickly packed and rapidly unloaded. Ladders and equipment are instantly accessible.

Macks set the pace in efficiency because they are the products of the greatest research, engineering and manufacturing resources in the field, with nearly forty years of uninterrupted motorized fire apparatus production. Let your Mack representative show how you get top efficiency—as well as pace-setting performance and reliability—when you *Modernize with Macks.*

Mack FIRE APPARATUS

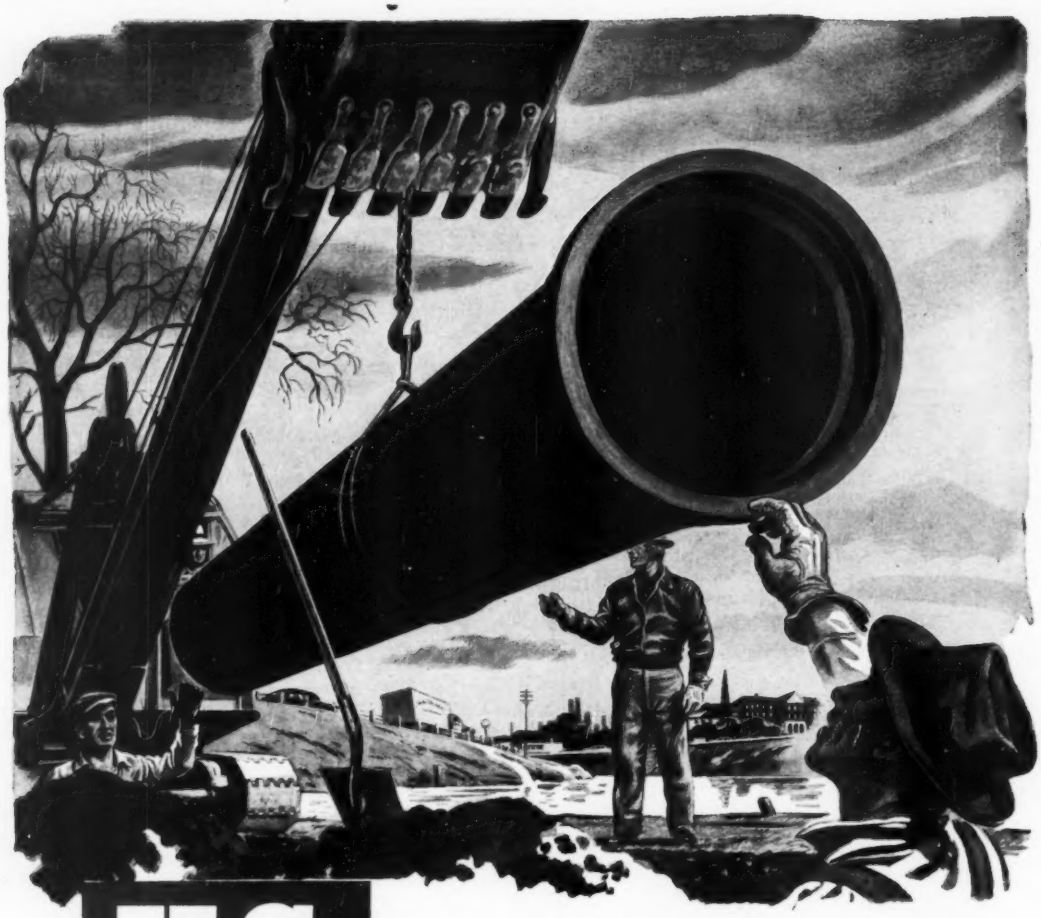
7617

One of two Mack Type 85, 750-gallon pumpers recently delivered to Birmingham, Alabama.

Factory branches for parts and service in all principal cities. In Canada, Mack Trucks of Canada, Ltd.

Mack Manufacturing Corp.
Fire Apparatus Division
Long Island City 1, New York

TRIPLE COMBINATION PUMPERS—500 TO 2000 GALLONS...SQUAD AND HOSE CARS...AERIAL, CITY SERVICE AND QUADRUPLE COMBINATION LADDER TRUCKS



Painted for U. S. Pipe & Foundry Co. by Paul Laune

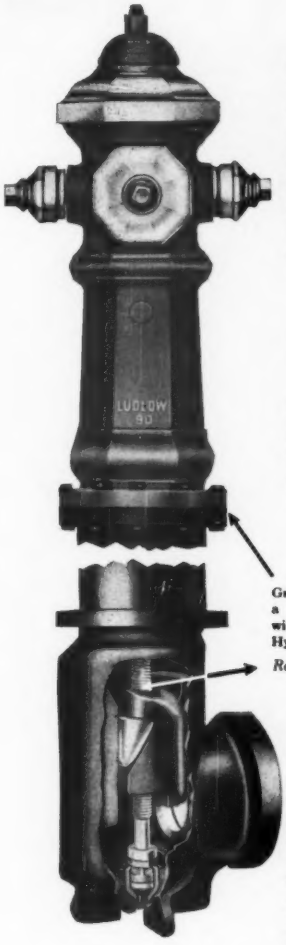
U.S. PIPE

THE quality of U. S. Cast Iron Pipe is controlled to a degree undreamed of by pipe founders a generation ago. Before the molten metal is poured into the mold of a Super-deLavaud centrifugal casting machine the important characteristics of the iron have been determined by our metallurgists. After the pipe has been cast our plant and research laboratories conduct numerous tests, in addition to acceptance tests, to assure the maintenance of quality in U. S. Pipe. This routine procedure at our several plants is enforced so that *we* may be confident that *your* confidence in our product continues to be justified. **United States Pipe and Foundry Co., General Offices: Burlington, New Jersey, Plants and Sales Offices Throughout U. S. A.**

EASY SERVICING

. . . without digging

A hydrant must allow easy inspection and servicing. The *best* hydrant, therefore, permits the removal of all working parts as one unit. To inspect or service a Ludlow Slide Gate Hydrant you'll need a wrench - - that's all. But. . *first* turn off the water! Just take off the top of the hydrant and lift out the stem, *without unscrewing anything below ground.* The entire mechanism, including the gate, bronze wedge nut and drip assembly is attached to the stem.



Ground line flange is a standard feature with every Ludlow Hydrant.

Rolled Everdur Stem

LUDLOW FIRE HYDRANTS

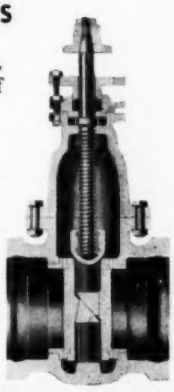
Shown here is the distinctive Ludlow List No. 90, a hydrant of the highest quality, now serving in thousands of cities and towns. It employs the Ludlow Slide Gate principle, famous since 1880, and (in addition to easy servicing) offers the following advantages:

- *Quick Water* with least possible shock and pressure loss. Proper shut-off without water hammer.
- *Proper Drainage*, automatically, at lowest point when closed
- *No Flooding*, if knocked over by skidding truck Wedge-locked when closed. Accidental breaking will not cause flood. Hydrant head breaks at ground line; is easily replaced without excavation.

No Ludlow Fire Hydrant has ever failed in line of duty!

LUDLOW AWWA DOUBLE DISC GATE VALVES

The parallel seated, double wedge type slide gate valve, developed and perfected by Ludlow, provides a number of essential benefits.



Rolled Everdur Screw Stem is pinned into the cup end of the cold-rolled steel stem. No flooding. Lock nut on stem below gate positively locks gate after closing, preventing flooding if barrel or standpipe is knocked over by accident.

- *Smooth, Positive Operation.* Gates positioned directly opposite ports before wedging, and entirely unwedged before being raised.
- *Positive Closure.* Even after years of service in the open position; flexible-action gates self-adjusting to seats
- *Simplicity!* Only 2 parts in the wedging mechanism! These are extra heavy, with ample reserve strength and wear resistance for years of constant service.
- *Ready Replacement of Parts.* Simple construction with ample tolerances, permitting ready replacement of parts.

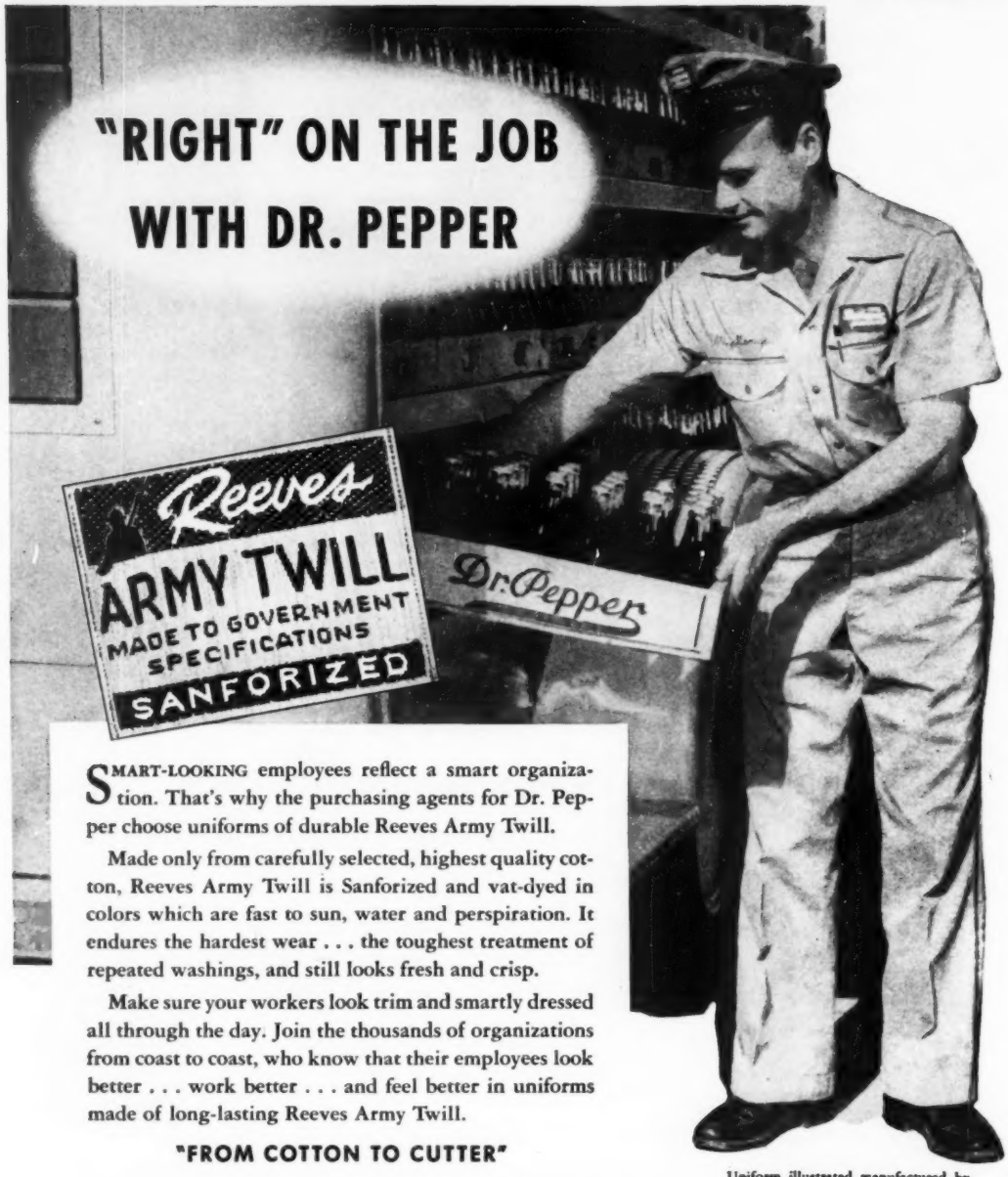
Made in sizes from 2" to 72", N.R.S. and O.S.&Y with all types of connections.

95-A

The LUDLOW VALVE SINCE 1866

MFG·CO·INC·TROY·N·Y·

REEVES ARMY TWILL



SMART-LOOKING employees reflect a smart organization. That's why the purchasing agents for Dr. Pepper choose uniforms of durable Reeves Army Twill.

Made only from carefully selected, highest quality cotton, Reeves Army Twill is Sanforized and vat-dyed in colors which are fast to sun, water and perspiration. It endures the hardest wear . . . the toughest treatment of repeated washings, and still looks fresh and crisp.

Make sure your workers look trim and smartly dressed all through the day. Join the thousands of organizations from coast to coast, who know that their employees look better . . . work better . . . and feel better in uniforms made of long-lasting Reeves Army Twill.

"FROM COTTON TO CUTTER"

Uniform illustrated manufactured by T. S. Lankford & Sons, Abilene, Texas

REEVES BROTHERS, Inc. 54 WORTH STREET, NEW YORK 13, N. Y.

REPRESENTATIVES IN: *Akron • Atlanta • Boston • Chicago • Dallas • Los Angeles • Philadelphia • Portland, Oregon • St. Louis • Montreal • Toronto*

A NEW ALL STAR CAST

THE NEW TD-24

The new TD-24 offers you more horsepower than any other crawler tractor available today—180 hp. at the flywheel, 140 hp. at the drawbar—plus dozens of features found only in the new TD-24.

THE NEW TD-14A

The new TD-14A has 60 drawbar horsepower and many mechanical improvements. Here is power to produce bigger payloads and to cut earthmoving costs.

THE NEW TD-18A

Famous for its power and dependability, the new TD-18A now gives you 87 drawbar horsepower. All the famous International diesel engine features and the durable construction of the new International TD-18A make this tractor an even greater producer than ever before.

Your International Industrial Power Distributor is now ready to furnish you with three great new stars of earthmoving power and performance—the new TD-24, the new TD-18A and the new TD-14A.

The great new TD-24 is America's most powerful and versatile crawler tractor with unmatched features for easier operation and far greater production. No other crawler tractor can give you all the features found in the new International TD-24.

And the other two stars on the new International earthmoving team are the TD-18A and TD-14A. Known for years for their dependable performance, these two efficient tractors have had their power increased to do more work, to operate with even greater ease and economy.

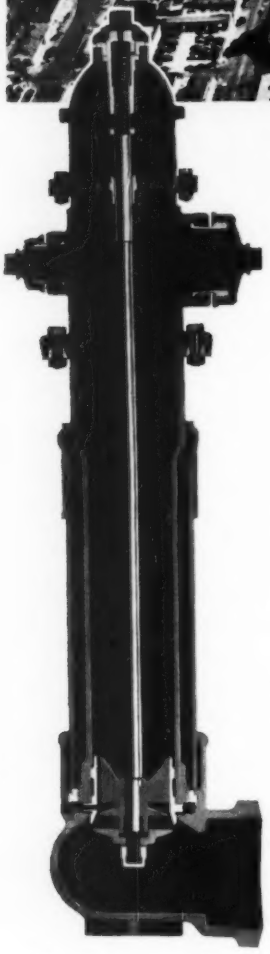
See your International Industrial Power Distributor now. Find out the facts and get these new tractors to work for you. You'll have an all star cast in your earthmoving line-up.

INTERNATIONAL HARVESTER COMPANY, Chicago, Ill.

CRAWLER TRACTORS
WHEEL TRACTORS
DIESEL ENGINES
POWER UNITS

INTERNATIONAL HARVESTER

INTERNATIONAL INDUSTRIAL POWER



TAMPA, FLORIDA

"One of America's Safest Cities"

THE MATHEWS FIREMEN SAY

They back up their statement by pointing to the Mathews Modernized Hydrants used by this great seaport. Wherever you see Mathews, you know there is safety *plus*.

Mathews Modernized Hydrants are the last word in simplicity of design. All working parts are contained in a removable barrel. The bronze revolving nut is capped by an iron shield operating nut which is resistant to wrench wear. The operating thread is not exposed to water—is protected from sand and grit. The stuffing box plate, cast integral with the nozzle section, is strong, safe and leakproof. The simple, rugged construction of the Mathews offers the utmost dependability and the least in maintenance requirements.

When broken in a traffic accident, a Mathews need be out of service only so long as it takes to replace the barrel with a spare—a matter of minutes. And a damaged Mathews means no loss of water, because the main valve opens *against* the pressure.

Send for our illustrated booklet and see how Mathews Modernized Hydrants can contribute to the safety of your community.

OTHER MATHEWS FEATURES: Head can be turned 360° • Replaceable head, nozzle outlets easily changed • Nozzle levels easily raised or lowered without excavating • Protection case of "Sand-Spun" cast iron for strength, toughness, elasticity • Operating thread only part to be oiled • A modern barrel makes any Mathews Hydrant good as new

MATHEWS HYDRANTS

Made by R. D. WOOD COMPANY

Public Ledger Bldg., Independence Square, Philadelphia 5, Pa.

Manufacturers of "Sand-Spun" Pipe (centrifugally cast in sand molds) and R. D. Wood Gate Valves

Proof Performance

The Very First **RIC-WIL** Prefabricated Insulated Pipe Units Ever Installed Are Still Giving Trouble-Free Service After 14 Years of Constant Use

Original condition of asphalt-coated conduit.

Asphalt-coated conduit still in perfect condition.

1949: All lines functioning perfectly, trouble-free

MINNEAPOLIS "No trouble . . . in constant use"
OMAHA "In good condition and is still serving in its original capacity"
DES MOINES "No trouble . . . in first class shape"

In 1935 the first Ric-wiL Insulated Pipe Units using asphalt-coated Hel-cor conduit as the outer protective housing were installed for a large products pipe line company, at Minneapolis, Omaha and Des Moines. Each of these steam lines consisted of 3" pipe insulated and enclosed in 8" conduit of standard 21' length Ric-wiL Units, with return lines laid outside the conduit.

In 1941 a check-up on these Ric-wiL Units under actual service conditions was made. Parts of the runs were excavated and a careful examination made of the conduit, fittings, etc. The Ric-wiL Units were in practically perfect condition, the same as they were when installed, with no perceptible deterioration or other damage.

In 1949 a further check-up of all three installations was made. This investigation, as indicated by the quotations from the reports given above, showed all the lines still in constant use, functioning satisfactorily and trouble-free.

In the years since this original installation, in thousands of central heating and industrial processing projects, Ric-wiL Insulated Pipe Units, constantly improved by engineering research and development, **have continued to prove, through performance, their right to unchallenged leadership in this field.**

1. **HOUSING** of strong, shock-proof 16 gauge hot-dip galvanized Hel-cor conduit, spirally corrugated. Inside bonderized and coated with baked phenolic resin for additional protection.
2. **HIGH TEMPERATURE** asphalt coatings reinforced with tension wrapping of asphalt-saturated asbestos felt.
3. **INSULATION** of high thermal efficiency—any required type or thickness.
4. **PRESEAL RING** of steam-cured insulating cement protects units during shipping and installation.
5. **HEAVY IRON COLLAR** provides a firm foundation in making full-welded watertight field joints.

For complete information write for Ric-wiL Prefabricated Insulated Piping Systems Catalog 480-4. Address: The Ric-wiL Company, Dept. S-11.

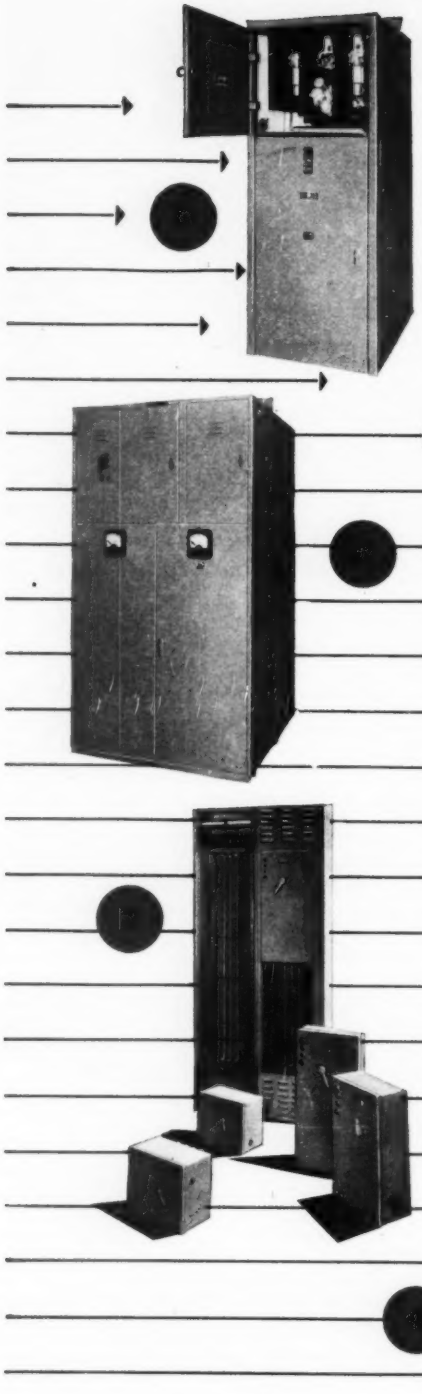
RIC-WIL

INSULATED PIPING SYSTEMS

THE RIC-WIL COMPANY • CLEVELAND, OHIO

REPRESENTATIVES IN PRINCIPAL CITIES

Centralized
short-cut to



	LIMITAMP
Sewage and Water Applications	Pumps, compressors, blowers, conveyors
Voltage	2500 and 5000 v a-c
Horsepower	700 hp at 2300 v; 1250 hp at 4000 v or 4600 v
Motor Type	Any
Starter Type	Full- or reduced-voltage, multi-speed, reversing or non-reversing
Short-circuit Protection	Up to 150,000 kva at 2500 v and 250,000 kva at 4600 v max interrupting rating, current-limiting fuses operate in ¼ cycle; air-break contactors
Mounting	Free-standing; enclosed a-c power bus available for multi-starter lineups
Ask for Bulletin No.	GEA-4247

"Packaged" Control

efficient, attractive plant layout

HEAVY-DUTY LOW-VOLTAGE CONTROLLERS	MOTOR CONTROL CENTERS	CABINETROL
Pumps, compressors, blowers, conveyors	Pumps, compressors, blowers, conveyors, auxiliary equipment, lighting circuits	Complete plant-group control including power-company metering, other meters
600 v a-c, 230 v d-c max	220 to 600 v a-c	220 to 600 v a-c
350 hp d-c, 800 hp a-c max	Up to 100 hp at 440 v	Up to 400 hp at 440 v; or 200 hp at 220 v
Any	Squirrel-cage induction; multi-speed	Any
Full- or reduced-voltage, multi-speed reversing or non-reversing	Combination starters, full-voltage or reactor reduced-voltage, reversing, non-reversing or two-speed	All kinds, including magnetic and electronic
Up to 25,000 or 50,000 amp short-circuit interrupting rating, starters with draw-out air circuit breakers	Up to 25,000 amp interrupting rating; combination starters with air circuit breakers in isolated compartments	Up to 50,000 amp interrupting rating; combination starters with air circuit breakers or fused switches in isolated compartments
Free-standing; enclosed a-c power bus available for multi-starter lineups	Wired or unwired, accessible from front	Free-standing, completely wired, accessible front and rear
GEA-4939	GEA-4979	GEA-3856A

One Of The Above General Electric packaged control equipments can be tailored from standard parts to fill any sewage- or water-plant need. Each is completely metal-enclosed, factory-assembled and tested, and shipped ready to install. To save you installation time and expense, all bus connections, panel wiring, and interconnections can be made at the factory . . . just set the unit in place and hook up incoming and outgoing leads.

All the above equipments are a standard height to present a uniform, attractive appearance when installed together. Metal enclosures provide greater safety to personnel and equipment.

PLAN EARLY AND PROFIT!

Your consulting engineer or General Electric representative will tell you more about these equipments and help you plan your entire electrical layout. Consult him early, so that you can profit by co-ordinated planning . . . thereby simplifying engineering, buying, construction and installation. Apparatus Dept., General Electric Co., Schenectady, N. Y.

With factories in Anaheim, Los Angeles, Oakland, Ontario, San Francisco, San Jose, Seattle, and Richland, and Sales Offices in twenty Western cities.

WATER PLANT • SEWAGE PLANT
ELECTRIFICATION

GENERAL ELECTRIC

Specify **386** *and other standard numbers. Sample brochure upon request.*

METCALF BROS. & CO. **45 EAST 17th. STREET, NEW YORK CITY**

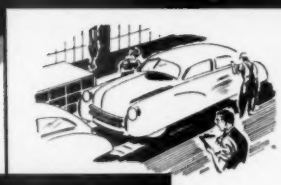
Z-Z-Z-Z-Z-Z-Z-Z-Z-z

is an accurate description of how guests react to Hotel Statler's 800-spring beds. And when they taste Statler's wonderful food, and sample Statler's efficient service, they're guests for life!

STATLER HOTELS

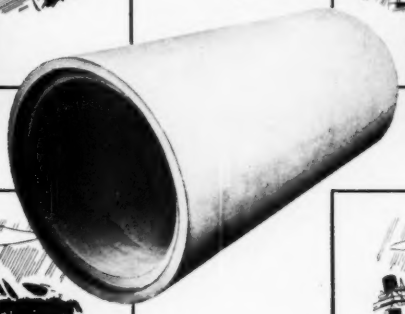
STATLER HOTELS: ***NEW YORK*** (FORMERLY HOTEL PENNSYLVANIA)
BOSTON • ***BUFFALO*** • ***CLEVELAND***
DETROIT • ***ST. LOUIS*** • ***WASHINGTON***
STATLER OPERATED ***HOTEL WILLIAM PENN*** • **PITTSBURGH**

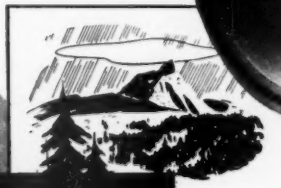
LOCK JOINT REPEAT PERFORMANCES



DETROIT—Since 1942
13 jobs—Totalling
186,950′ of 24″-72″ pipe

WASHINGTON D. C.—Since 1925
16 jobs—Totalling
117,510′ of 20″-78″ pipe





DENVER—Since 1920
23 jobs—Totalling
390,298′ of 20″-90″ pipe

NORFOLK—Since 1921
17 jobs—Totalling
511,547′ of 20″-54″ pipe

Why do they all choose Lock Joint Pressure Pipe—again and again—for their major water supply projects?

THERE ARE FOUR MAIN REASONS

1. **Great structural strength at minimum cost.**
2. **Retains its high carrying capacity for generations.**
3. **Maintenance and repair costs, if any, are negligible.**
4. **An extremely long life of unfailing service.**

"Repeat performances" in key cities are positive proof that these conservative claims are true. We shall be glad to furnish specific references in these cities or in any other of more than 150 cities and towns in the western hemisphere which enjoy the unsurpassed services of Lock Joint water supply lines.

SCOPE OF SERVICES

Lock Joint Pipe Company specializes in the manufacture and installation of Reinforced Concrete Pressure Pipe for Water Supply and Distribution Mains in a wide range of diameters as well as Concrete Pipe of all types for Sanitary Sewers, Storm Drains, Culverts and Subaqueous Lines.

* * *

LOCK JOINT PIPE COMPANY

Est. 1905

P.O. Box 269, East Orange, N. J.

PRESSURE PIPE PLANTS: Wharton, N. J., Turner, Kan., Detroit, Mich.

BRANCH OFFICES: Cheyenne, Wyo. • Denver, Col. • Kansas City, Mo. Valley Park, Mo. • Chicago, Ill. • Rock Island, Ill. • Wichita, Kan. Kenilworth, N. J. • Hartford, Conn.

THE ONLY TWO STAGE PUMP WITH OPERATING CHARACTERISTICS

Barton-American
DUPLEX MULTI-STAGE
Centrifugal Fire Pump

Two independent pumps driven by individual gear trains —breakdown of one still leaves one in operation — makes possible three operating characteristics.

1. Large capacities at normal pressures delivered through the capacity pump only.

2. Normal high pressures delivered through the high pressure pump only.

3. Pressures as high as 400 pounds are delivered with both pumps operating in series and at LOW engine speed.

The Barton-American Duplex-Multistage is the ONLY fire pump that has three distinct and separate operating characteristics, yet has only TWO impellers.

Positive one point lubrication. Ball bearings and gears are all located in pump transmission case, using same grade of oil as truck engine. No grease cups to be overlooked — no water lubricated bearings to run dry and fail.

Delivers 400 pounds pressure for fog gun service.

AMERICAN-MARSH PUMPS

BATTLE CREEK MICHIGAN U. S. A.

Pumps and Only Pumps Since 1873

Newly Improved OK CHAMPION POWER SEWER CLEANER

DON'T LOSE Sewer Capacity

Clear your sewer lines regularly. Keep up full carrying capacity and you save money—in lower maintenance cost and avoiding costly backwash. Order OK Champion Power Sewer Cleaner equipment and your men remove roots, dirt and other obstructions from any storm or sanitary sewer in ONE operation. All men work above street level.

OK Champion cleaners are regularly clearing sewers all over the world. New improvements make them better than ever. Send for literature.

CHAMPION CORPORATION
Hammond, Indiana

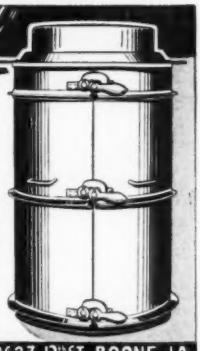
GET FULL FACTS NOW!

CHAMPION CORPORATION, 4716 Sheffield Ave., Hammond, Ind. Please send information on how the Improved OK Champion Power Sewer Cleaner cuts sewer cleaning costs.

NAME.....TITLE.....

ADDRESS.....

THE Quinn Standard FOR CONCRETE PIPE



The Quinn Standard is known as the best the world over, wherever concrete pipe is produced and used. Backed by over 35 years' service in the hands of hundreds of Quinn-educated contractors, municipal departments and pipe manufacturers who know from experience that **Quinn pipe forms** and **Quinn mixing formulas** combine to produce the finest concrete pipe at lowest cost.

QUINN HEAVY DUTY PIPE FORMS

For making pipe by hand methods by either the wet or semi-dry processes. Built to give more years of service—sizes for pipe from 10" up to 120" and larger—tongue and groove or bell end pipe at lowest cost.

WRITE TODAY. Complete information, prices, and estimates sent on request.

Also manufacturers QUINN CONCRETE PIPE MACHINES

QUINN WIRE & IRON WORKS 1623 12TH ST. BOONE, IA

THAW PIPES, HYDRANTS, CULVERTS—SAFELY—QUICKLY

KEEP AHEAD WITH AEROIL

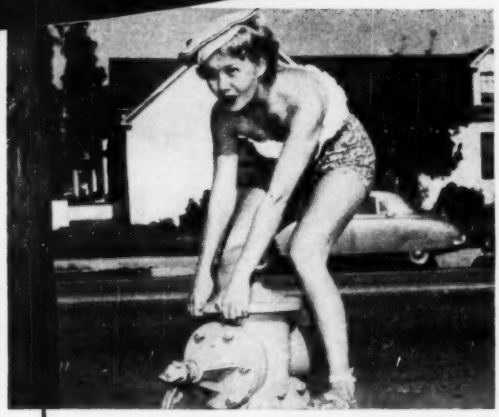
BURNERS-KETTLES-TANKS

The Aeroil 298 Steam Thawing Outfit is used by leading municipalities and counties for quick thawing of culverts, pipes, oil and gas lines, etc. It is easily loaded on to and taken off a regular supply truck and has a steaming rate of 90 lbs. of water per hour. Produces steam at 15 lbs. pressure in 10 minutes. Torch outfit used for heating steamer, removable for 101 thawing, melting, heating and burning year-'round uses. Unit comes completely equipped with pressure relief valve and steam jet. Special culvert thawing nozzle can be purchased with unit. Send for free leaflet 377YA.

AEROIL PRODUCTS COMPANY, INC.

5 Wesley Street
South Hackensack, New Jersey
Chicago • Pittsburgh • Seattle • Dallas
Los Angeles • San Francisco • Jacksonville

Chester Conklin, former meter reader (now promoted to maintenance) watches wistfully as new Meter Readerettes salute The Great Gildersleeve before starting out to read 'em.

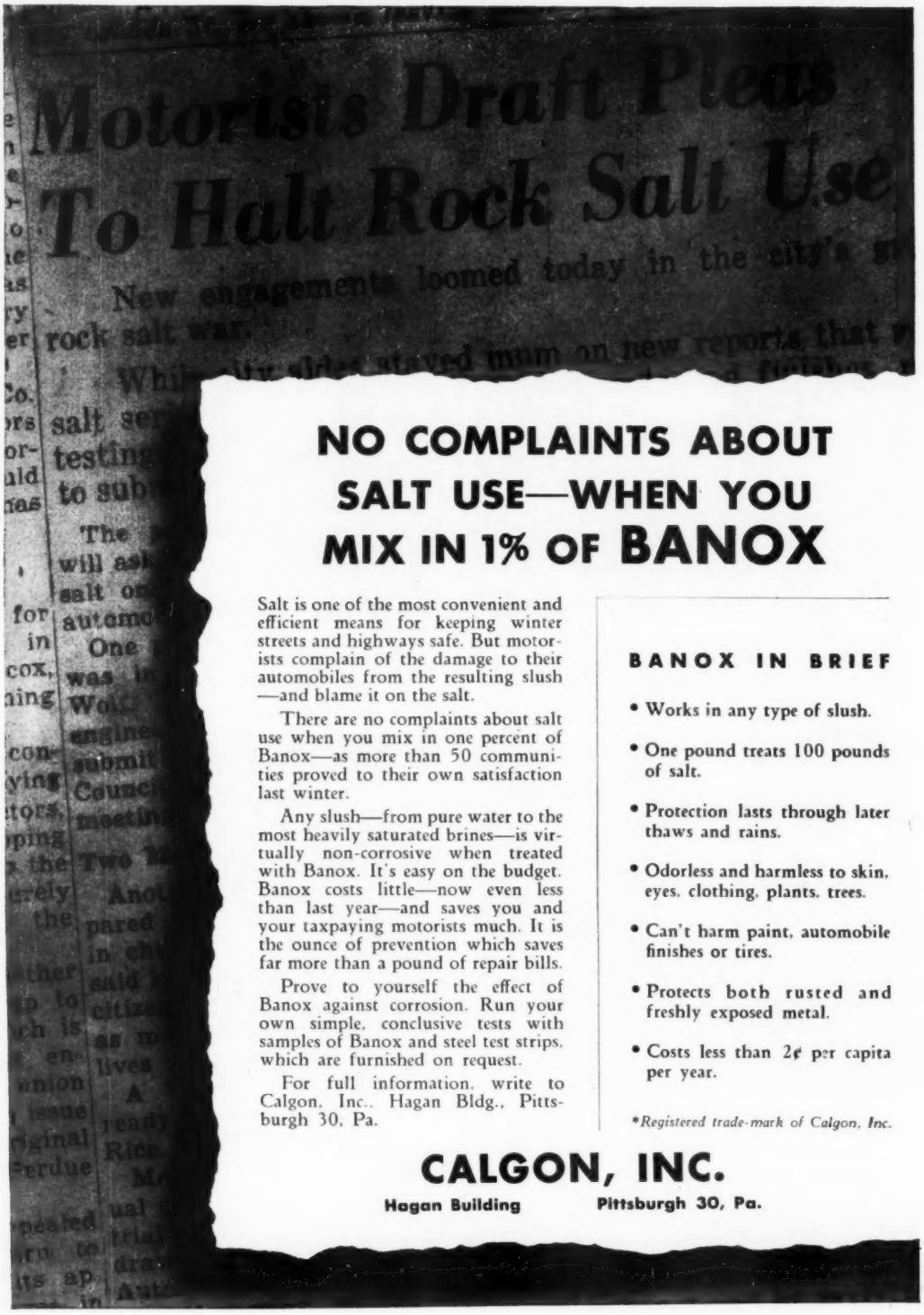


Hydrants present a tough hurdle. "This doesn't look like the meter Mr. Gildersleeve showed us . . . but maybe it's the large economy size."

"I wonder what they mean by a curb meter? It just says here: 'Unscrew the disaflous, then the samastrope will be in plain view'." (The gal can't even read the manual.)

But seriously speaking, you can always read Pittsburgh-Empire meters and profit from their accuracy.

Next month Gildy finds out the girls can't read meters either—



NO COMPLAINTS ABOUT SALT USE—WHEN YOU MIX IN 1% OF BANOX

Salt is one of the most convenient and efficient means for keeping winter streets and highways safe. But motorists complain of the damage to their automobiles from the resulting slush —and blame it on the salt.

There are no complaints about salt use when you mix in one percent of Banox—as more than 50 communities proved to their own satisfaction last winter.

Any slush—from pure water to the most heavily saturated brines—is virtually non-corrosive when treated with Banox. It's easy on the budget. Banox costs little—now even less than last year—and saves you and your taxpaying motorists much. It is the ounce of prevention which saves far more than a pound of repair bills.

Prove to yourself the effect of Banox against corrosion. Run your own simple, conclusive tests with samples of Banox and steel test strips, which are furnished on request.

For full information, write to Calgon, Inc., Hagan Bldg., Pittsburgh 30, Pa.

BANOX IN BRIEF

- Works in any type of slush.
- One pound treats 100 pounds of salt.
- Protection lasts through later thaws and rains.
- Odorless and harmless to skin, eyes, clothing, plants, trees.
- Can't harm paint, automobile finishes or tires.
- Protects both rusted and freshly exposed metal.
- Costs less than 2¢ per capita per year.

**Registered trade-mark of Calgon, Inc.*

CALGON, INC.

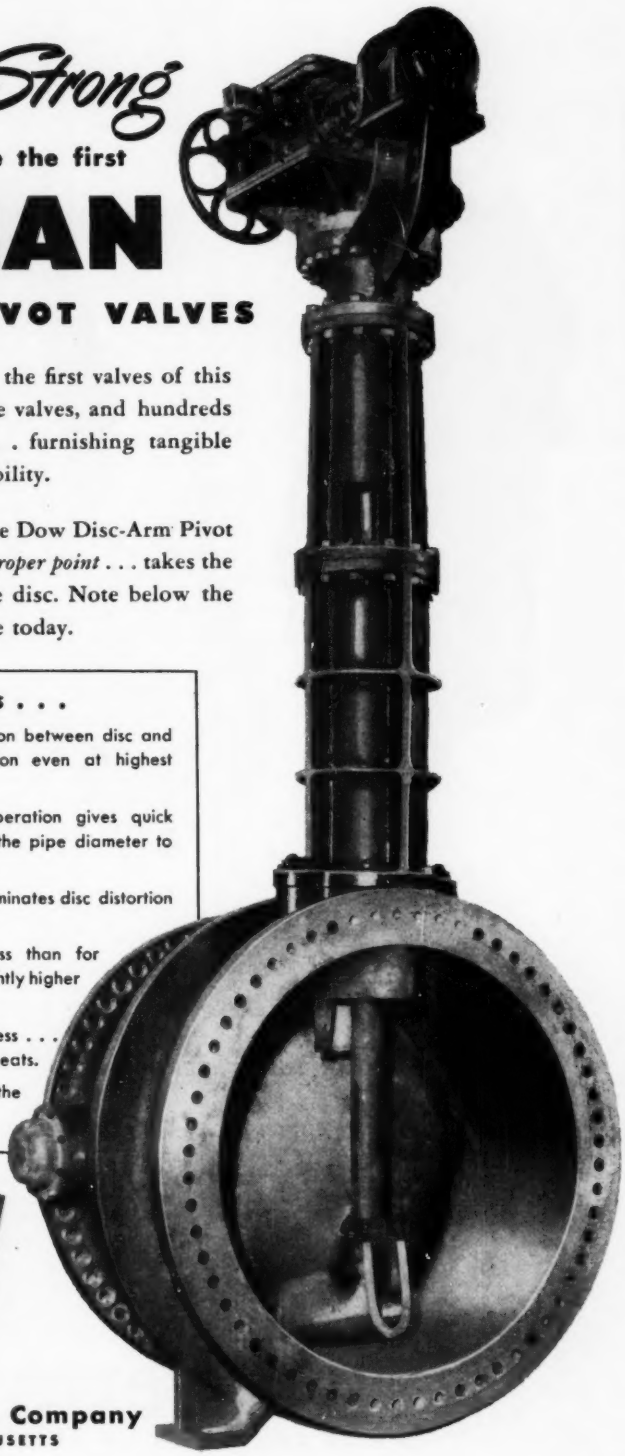
Hagan Building Pittsburgh 30, Pa.

Still Going Strong

after more than 25 years are the first

CHAPMAN

DOW DISC-ARM PIVOT VALVES



More than a quarter of a century ago the first valves of this design were installed. And today these valves, and hundreds more, are giving excellent service . . . furnishing tangible evidence of unusual strength and reliability.

An improved type of butterfly valve, the Dow Disc-Arm Pivot Valve *applies the operating force to the proper point* . . . takes the deflection out of the lower half of the disc. Note below the advantages of this design . . . then write today.

Check These Advantages . . .

NO VIBRATION! Because of direct connection between disc and operating mechanism there is no vibration even at highest velocities.

FAST OPERATION! Simple and direct operation gives quick closing in emergencies . . . only one-half the pipe diameter to travel.

EXTREME TIGHTNESS! This unusual design eliminates disc distortion . . . ensures extreme tightness.

LOW HEAD LOSSES! Head losses are less than for needle or plunger type valves . . . only slightly higher than gate valves.

SMOOTH OPERATION! None of the jerkiness . . . none of the wear of valves with sliding seats.

EASY INSPECTION! Disc mechanism is on the downstream side when valve is closed.

The Chapman Valve Mfg. Company

INDIAN ORCHARD, MASSACHUSETTS

Sure, he's one of the family!

He's MR. SOFT WATER!

For Dad: SOFT WATER cuts costs, speeds production and increases product quality at the plant! The tremendous industrial economy of soft water is a *big inducement* for new industries to locate in your city!

For Mom: SOFT WATER saves 50% on soap—makes washing easier—lightens housework—reduces plumbing repairs, and cuts fuel bills. No wonder every family welcomes SOFT WATER!

For 35 years Permutit Water Conditioning Equipment has softened municipal water supplies, and removed turbidity, iron and other impurities. Consult Permutit engineers without obligation. Write for information to The Permutit Company, Dept. AC10, 330 West 42nd St., New York 18, N. Y., or to the Permutit Company of Canada, Ltd., Montreal.

Permutit®

WATER CONDITIONING HEADQUARTERS FOR 35 YEARS

Four Model 120T 1,000-gallon Triple Combination Ward LaFrance Pumpers, equipped with front suctions. Standing in picture are Trenton Fire Chief Thomas Phelan and John Duffy, Ward LaFrance distributor.

four pumpers for TRENTON

Trenton, N. J., the garden state capitol, recently added these four Ward LaFrance Pumpers to its fire department. Advanced engineering and dependable performance spell greater protection for Trenton whose famous citizen, engineer John Roebling, invented the wire-rope which made possible the Roebling-designed Brooklyn Bridge.

All over America, municipalities like Trenton have come to recognize Ward LaFrance, makers of the world-famous, war-proven M-1 Wrecker. The ease with which Ward LaFrance fire apparatus maneuvers through congested city streets—and over rugged country roads—has made them first choice everywhere. Every pumper offers the reserve horsepower so often needed for quick acceleration and hill climbing, plus a Waterous, famous since 1886, split housing pump . . . surplus gallonage that far exceeds its rated capacity . . . flat horizontal booster tank . . . exceptional hose capacity . . . and beautifully hand-rubbed lacquer paint finish.

It will pay you to investigate Ward LaFrance—choice of the nation's leading cities. Send for bulletins 75-85.

A few choice territories are still open. Write today for information.

Pumpers—Quads—City Service—Hose Wagons—Special Types—Rotary Gear—Single, 2 or 3 Stage Centrifugal Pumps available in various capacities.

Main Offices and Factory:
Grand Central Avenue
Elmira, N. Y.

Direct Factory Branch:
139th Street and Bruckner Boulevard
New York 54, New York

Export:
Ward LaFrance International, Inc.
Elmira, N. Y., U. S. A.
Cable Address: "Wardtruck"

WARD LaFRANCE TRUCK CORPORATION

Fire Apparatus Manufacturers for Over 30 Years

KEEP TRAFFIC MOVING

— Change from Out-Moded

GET "BARE-PAVEMENT" MAINTENANCE

SAFE

Sterling *Auger-Action* Rock Salt will not harm black top or brick pavements. NOR WILL IT HARM CONCRETE SLAB FOUR OR MORE YEARS OLD, NOR AIR-ENTRAINED CEMENT.*

*Authority: Portland Cement Association

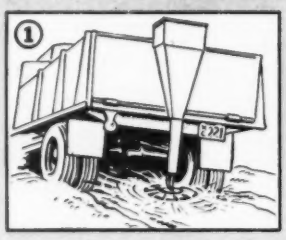
FAST

One truck of Sterling *Auger-Action* Rock Salt will cover 10-15 miles before reloading. One truck with abrasives will cover only 1½ miles before reloading. THUS SALT IS APPLIED IN 1/10th THE TIME OF ABRASIVES.

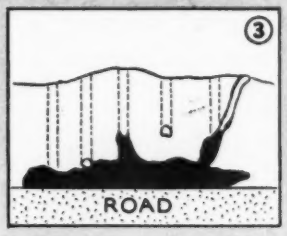
EASY

Sterling *Auger-Action* Rock Salt is easy to store. It can be used in any mechanical spreader. No vari-sized chunks. No freezing. LEAVES NO RESIDUE TO BE CLEARED FROM ROADS AND SEWERS!

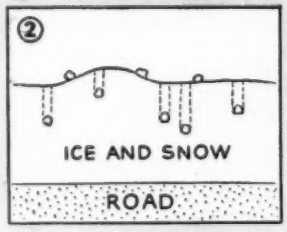
HOW STERLING *AUGER-ACTION* ROCK SALT WORKS



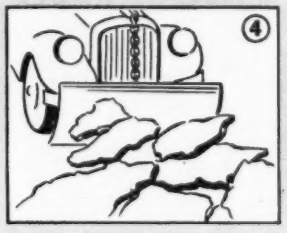
Sterling *Auger-Action* Rock Salt can be used in any mechanical spreader. Requires no special treatments.



Salt crystal reaches pavement . . . becomes brine. Brine BREAKS THE BOND between road surface and ice.



Each Sterling *Auger-Action* Rock Salt crystal bores a hole its own size in ice or snow.



Broken ice can be removed with one pass of plow or scraper. Heavy traffic spots clear themselves with passage of vehicles.

STERLING

EVERY DAY THIS WINTER AT ½ THE COST

Abrasive Chemical Methods—

WITH STERLING *Auger Action* ROCK SALT

ECONOMICAL

These are actual figures obtained from F. Ray Williams, Supt. of Highways, Saratoga County, N. Y.

COMPARATIVE COSTS OF PROTECTING ICY HIGHWAYS WITH TREATED SAND AND ROCK SALT

SAND MIXED WITH ROCK SALT:

Royalty	$ .10
Loading	.25
Haul, 5 miles at 8¢	.40
Piling with bulldozer	.15
Treating with salt at 50 lbs. per cu. yd.	.48
Reloading at time of storm	.25
Average haul, 10 miles at 8¢	.80
Spread	.10
Total cost per cu. yd.	$ 2.53
Use of 3 cu. yd. per mile at $2.53	7.59

STRAIGHT ROCK SALT:

CC Grade Rock Salt: (400 lb. per mile, computed for 5-ton load)	
5 tons of bulk salt at $12.95 per ton	64.75
Loading, 5 tons at 25¢ per ton	1.25
Average haul (30 miles at 8¢ per ton-mile) 5 tons	12.00
Spread (mechanical) 5 tons at $1.00	5.00
	$83.00
$83.00/5 ton per ton	= 16.60
$83.00/25 miles per mile	= 3.32

UNIT SAVINGS:

$7.59 cost per mile with treated sand

$3.32 cost per mile with Sterling Rock Salt

$4.27 SAVING PER MILE EACH ICING IN FAVOR OF ROCK SALT

Mileage of state highways in Saratoga County, N.Y.=216 miles

ESTIMATED SAVING EACH STORM=
216 x $4.27=$922.32

GET READY FOR WINTER—NOW!

- Easy to store
- Comes in carloads, bulk, or handy 100 lb. bags

AUGER-ACTION ROCK SALT

INTERNATIONAL SALT COMPANY, INC.
SCRANTON, PA.

Niftiest, Thriftiest Traffic Controller Money can Buy!

YEARS AHEAD IN DESIGN . . . *it's designed for the years ahead!* Think of it . . . You can provide *today* for all future expansion of your traffic control system. One Marbelite "foundation" installation *now* . . . to meet your immediate needs. Then, whenever you please, simply add one or more MARBELITE *jack-connected Dials.*

Specify MARBELITE "MULTI-DIAL CONTROLLERS" . . . with the Marbelite Unit-Dial.

THE MARBELITE COMPANY, INC.
27 WARREN STREET, NEW YORK 7, N. Y.
GENTLEMEN:
Please send me complete details of *Marbelite* Multi-Dial controllers providing for future expansion.
Name .....
Address .....
City ..... Zone .....
State .....

THE MARBELITE COMPANY, INC.

HIGHWAYS, STREETS AND ROADS NEED THE LITTLEFORD 84-HD KETTLE

TIME SAVER

84-HD Kettle using Hand Spray Attachment for Patch Work.

COST SAVER

When the Littleford 84-HD Kettle is on a road maintenance job its faster heating, efficiency in operation and patented features make it a Time Saver, Cost Saver and Road Saver. No other Kettle has ever been designed with such painstaking effort as the 84-HD. This Littleford unit has patented features such as Double Heat Circulation System, which utilizes the entire heat of the Burner, and Screened Reservoir, which assures a continuous flow of hot materials even when cold materials are added during the heating. These features are the reason why the 84-HD has repaired more Roads, Streets and Highways than any other kettle on the market. To make the 84-HD even more efficient, a Hand Spray or Motor Spray Attachment can be added to this Kettle.

ROAD SAVER

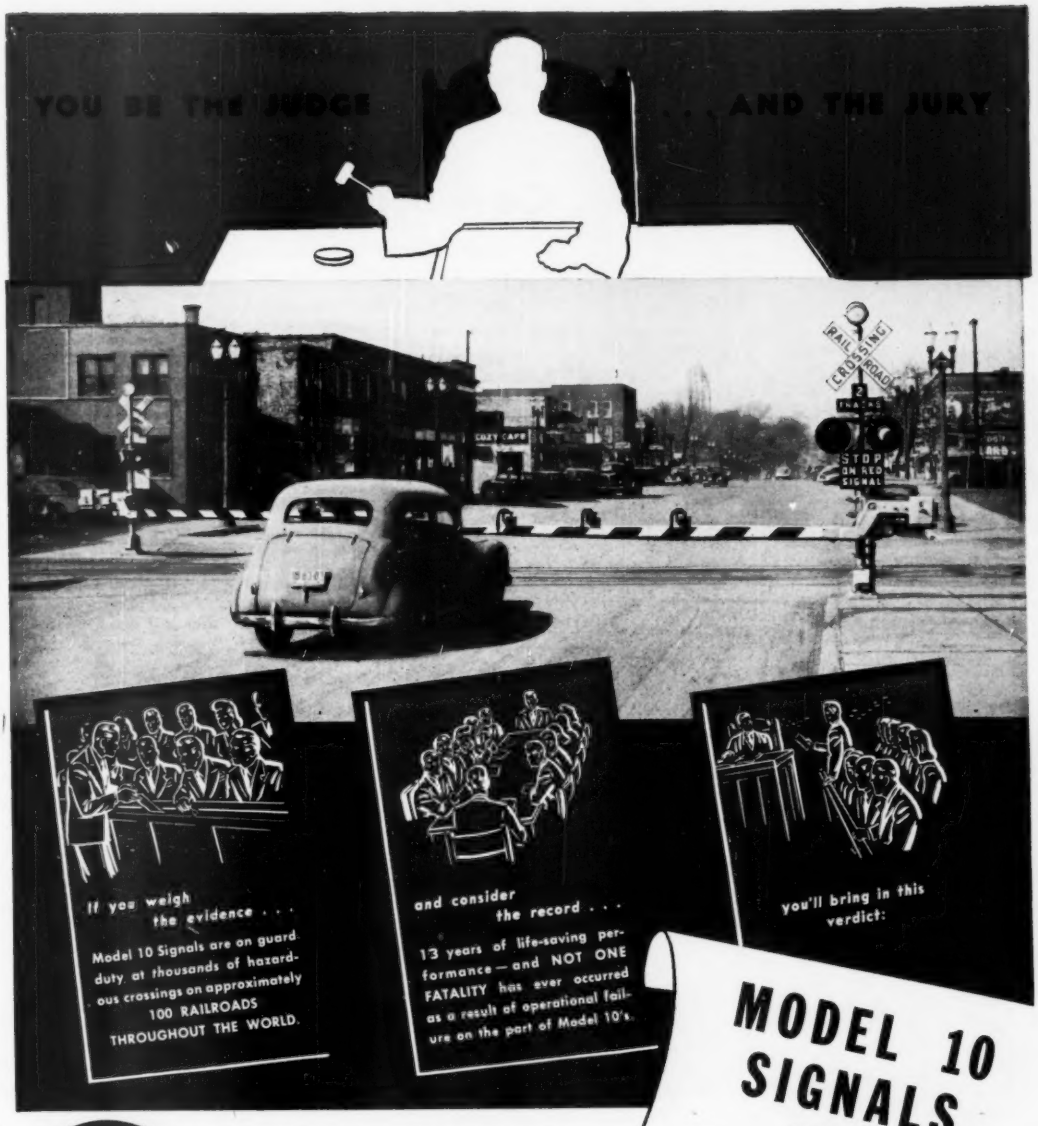
For further details see your nearest Littleford Equipment Distributor.

MANUFACTURERS OF

"Tankar" Steam Heaters	"Spray Master" Pressure Distributors	
"Kwik-Melter" Roofers Kettles	Highway Brooms	Asphalt Supply Tanks
Trail-O-Rollers	Tool Heaters	No. 101 Utility Spray Tanks
	Trail-O-Distributors	84-HD Asphalt Kettles

LB LITTLEFORD
BLACK TOP ROAD MAINTENANCE EQUIPMENT SINCE 1900

LITTLEFORD BROS., INC.
500 E. Pearl St., Cincinnati 2, Ohio


YOU BE THE JUDGE . . . AND THE JURY
RAIL ROAD CROSSING
2 TRACKS
STOP ON RED SIGNAL
If you weigh the evidence . . .
Model 10 Signals are on guard duty at thousands of hazardous crossings on approximately 100 RAILROADS THROUGHOUT THE WORLD.
and consider the record . . .
13 years of life-saving performance — and NOT ONE FATALITY has ever occurred as a result of operational failure on the part of Model 10's.
you'll bring in this verdict:

MODEL 10 SIGNALS ARE THE *Best Buy in Safety*

Model 10 HIGHWAY CROSSING SIGNALS

Model 10 Signals operate AUTOMATICALLY, dependably—24 hours a day.

The name "WRRS" means engineering and craftsmanship by *specialists* in the field of safety devices for railroads.

U.S. PAT. NOS. 2,137,196; 2,362,710; 2,372,579. PAT'D in CANADA 6-27-39

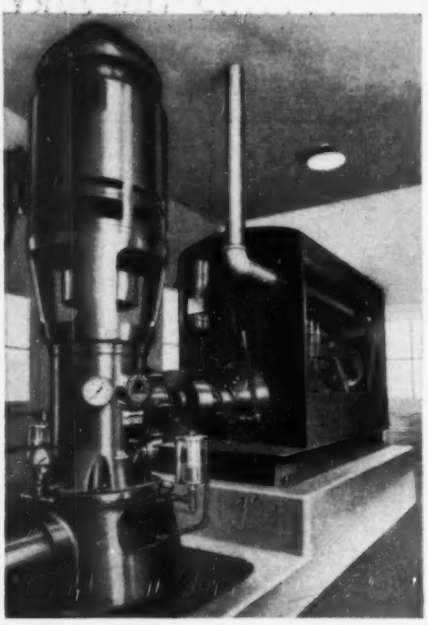
MODEL 10 HIGHWAY CROSSING SIGNALS ARE THE PRODUCT OF

WESTERN RAILROAD SUPPLY CO.

2406-2436 SOUTH ASHLAND AVE.
CHICAGO 8, ILL.

CERTIFICATE OF MERIT for Safety AWARD WESTERN RAILROAD SUPPLY CO

When Power Lines Fail Depend on



JOHNSON Combination DRIVES

CONTINUOUS WATER SUPPLY... protects the public health and reduces fire hazard.

FLOOD DAMAGE... insures 24-hour operation of drainage pumps in any emergency.

RESERVE POWER... will transmit additional power to meet emergency requirements.

SEWAGE... the ideal Drive for continuous 24-hour constant service.

ADAPTABLE... available in a number of sizes and types to meet varied application.

WORLD WIDE ACCEPTANCE... in recognition of dependable service, economy of operation and maintenance. Hundreds in use by municipalities. (See illustration.)

INVESTIGATE BEFORE IT'S TOO LATE... send for catalog.

JOHNSON GEAR
AND MANUFACTURING CO.
MAIN OFFICE & WORKS • BERKELEY 2 • CALIFORNIA

Superior Performance

TENNESSEE CORPORATION
Ferri-Floc
FERRIC SULPHATE
Atlanta, Georgia

...of a Superior COAGULANT

SEVEN ADVANTAGES OF FERRI-FLOC

1. Coagulation is effective over a much wider pH range than with other coagulants. Color flocs may be formed in the very acid range where other coagulants may not be employed. On the other hand, true hydrated ferric oxide flocs may be formed at pH 9-10 or even higher for the removal of turpidity and manganese.
2. The time required for floc formation, conditioning and settling is in many cases considerably shorter than that required for other coagulants.
3. Filter runs have been markedly increased in several cases.
4. Manganese is successfully removed at pH values above 9.
5. Effluents may be produced which are exceedingly low in both iron and aluminum.
6. Hydrogen Sulphide is removed and tests and odors improved.
7. Ferri-Floc does not seem to stick to sand grain to form mud balls, and is subject to less "breaking through" on the filters.

Let us send you FREE, this valuable booklet on Ferri-Floc.
Write TENNESSEE CORPORATION,
Grant Bldg., Atlanta, Ga.

Many of the country's larger plants are now recognizing the advantages offered by Ferric Coagulants and are taking advantage of them through Ferri-Floc. — Ferri-Floc eliminates the troubles encountered with other coagulants by improving general quality, reducing overall cost. — All of this is accomplished without costly changes in plant equipment.

TENNESSEE TC CORPORATION
Atlanta, Georgia — Lockland, Ohio

GET BETTER COPIES with BETTER SUPPLIES

For fast addressing

Mimeograph 33 addresses onto pages of gummed, perforated labels. Guide lines on stencil sheet position the addresses accurately.

Prepare material in columns

These stencil sheets have guide lines for two- or three-column duplicated copies. Sharpen the appearance and quality.

Prepare stencils by hand

No typewriter needed. These stencil sheets ruled for easy handwriting. Prepare them anywhere—at your desk, at home.

Produce 4-page folders

These stencil sheets have guide lines and complete instructions for producing smart looking 4-page folders quickly and economically.

New ink eliminates slip-sheeting

Contac-Dri Ink dries so fast that slip-sheeting is unnecessary on many types of paper. Production time is speeded. Duplication is simpler, more economical.

How to Oil Paper Gears!

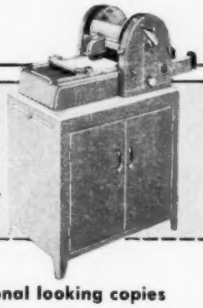
A government is powered by people. But the gears that transmit the power are paper—reports, bulletins, forms, lists—countless copies of anything written, typed, or drawn.

That's an important job. If it's done swiftly, smoothly, and economically, it will be reflected in more efficient administration. And it's a job in which A. B. Dick mimeographs are unequalled.

Fast production in handling a wide range of paper stocks and sizes is an easy matter with the complete line of A. B. Dick mimeographs. For use with all makes of suitable stencil duplicating products. Get complete details from your nearby A. B. Dick distributor, or send in the coupon below.

Mimeographing Is ***BALANCED*** *Duplicating*

Brings you *all* the essentials—legibility, speed, versatility, easy operation, and low over-all cost—with no sacrifice of one for another.



A.B.DICK

. . . the first name in mimeographing

Mail this Coupon for more information

New Accessories make professional looking copies

A. B. DICK COMPANY, Dept. AC-1049
720 West Jackson Boulevard, Chicago 6, Illinois

Please send me more information about ☐ A. B. Dick mimeographs
☐ A. B. Dick special mimeograph stencil sheets ☐ A. B. Dick new Contac-Dri Ink

NAME _____

DEPARTMENT _____

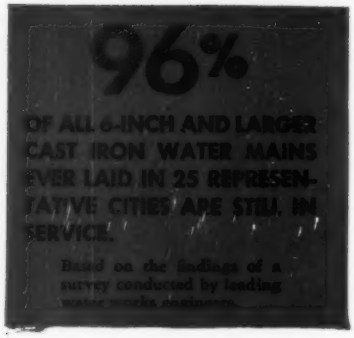
ADDRESS _____

CITY _____ STATE _____

The pipe that keeps

Number One Factor in the low cost of water is cast iron pipe. Conceding the efficient, faithful services of water works personnel, it nevertheless is a fact that the long life of cast iron pipe is the principal factor in keeping water service cheap.

Consider the fact that well over half of the cost of a water supply system is for distribution mains. If the mains had to be taken up and replaced every 30 years or so, and bonds issued to pay for it, the cost of water service would mount. But cast iron mains serve for centuries—*have* served for centuries in the older cities of Europe.


96%
OF ALL 6-INCH AND LARGER CAST IRON WATER MAINS EVER LAID IN 25 REPRESENTATIVE CITIES ARE STILL IN SERVICE.
Based on the findings of a survey conducted by leading water works engineers

In America, a survey conducted by water works engineers shows that 96% of all six-inch and larger cast iron water mains ever laid in 25 representative cities are still in service.

And when you realize that more than 95% of the pipe in America's water distribution systems is cast iron pipe, you will approve the headline of this advertisement. Cast Iron Pipe Research Association, Thomas F. Wolfe, Engineer, 122 South Michigan Ave., Chicago 3.

CAST IRON PIPE

water service cheap!

SERVES FOR CENTURIES

SEWERS

repaired speedily with

"GUNITE"

Sewers of brick, concrete, etc., or combinations of these materials, are all subject to attack by present-day sewage. Deterioration is rapid when once started.

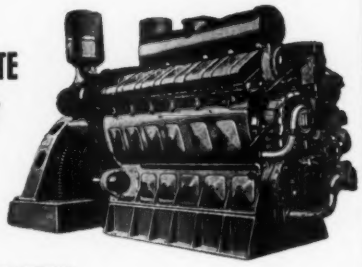
"GUNITE," because of its high density, is resistant to sewage and becomes the ideal material for linings and for the prevention of further disintegration.

Write for 48-page "GUNITE" booklet.

PRESSURE CONCRETE CO.
193 EMMETT ST., NEWARK 5, N. J.
33 N. LA SALLE ST., CHICAGO 2, ILL. • 315 S. COURT ST., FLORENCE, ALA.

DIESEL GENERATOR SETS

FOR IMMEDIATE DELIVERY



UNIT CAPACITIES
10 TO 1420 KVA

A.C. 50 AND 60 CYCLES
ANY VOLTAGE

Write or wire today for bulletins and complete information regarding these fine fully guaranteed DIESEL ENGINE GENERATING UNITS.

AG SCHOONMAKER CO INC.
Power Division
50 CHURCH STREET NEW YORK 7, NEW YORK

Smith-Gray NEW YORK

NEW POLICE OVERCOATS

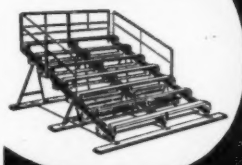
that provide comfort and warmth without weight.

Inquire About Our
JEN-CEL-LITE
Lined Overcoat

Jen-Cel-Lite INSULATED

SMITH-GRAY CORP.
740 Broadway, New York 3
Makers of Uniforms Since 1845

HUSSEY SAFE SEATING



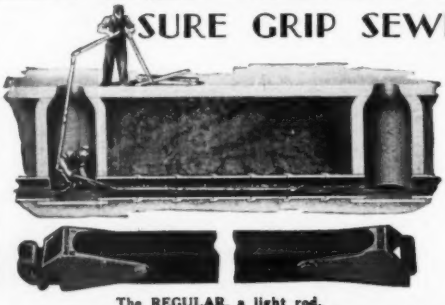
PORTABLE STEEL BLEACHERS AND GRANDSTANDS

The safe and economical solution for your outdoor and indoor seating problems. Our engineering staff is at your service without cost or obligation to you.

FREE
Write for illustrated folder and prices today.

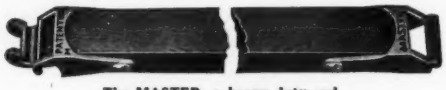
Hussey Mfg. Co., Inc. • 487 R. R. St. • N. Berwick, Maine
Also manufacturers of "Laughing Loon" Water Sports Equipment

SURE GRIP SEWER RODS and ACCESSORIES



The REGULAR, a light rod,
Fir stock 1¼ x 1¼ inch square.

are joined together with a dual lock forming a rigid chain that will float. They can be coupled or uncoupled upon the street if desired. Made in two sizes.



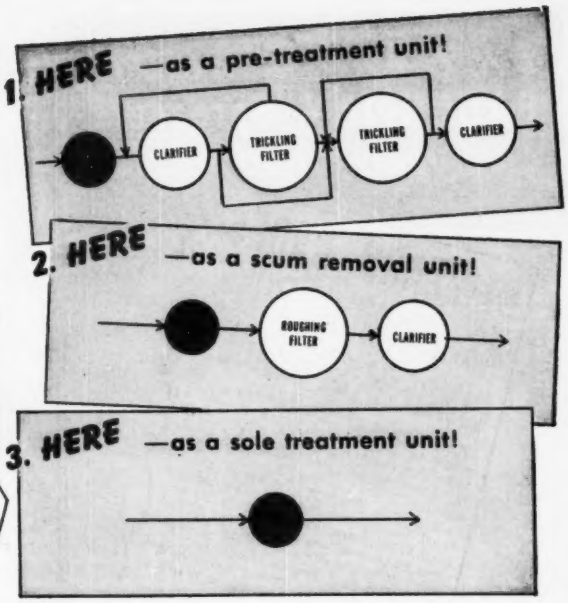
The MASTER, a heavy duty rod,
Fir stock 1⅓ x 1⅓ inch square.

Write for catalog on complete line of sewer cleaning equipment.

EXPANDING SEWER MACHINE CO.
NAPPANEE, IND.

in the sewage treatment flowsheet . . .

the DORRCO VACUATOR *fits*



Operating on the principle of vacuum flotation within an enclosed tank, the Dorrco Vacuator produces three separate products . . . scum and flotable solids . . . grit and settleable solids . . . an effluent. It can be used in the sewage treatment flowsheet to accomplish many results under widely varying conditions . . . of which the following three are typical.

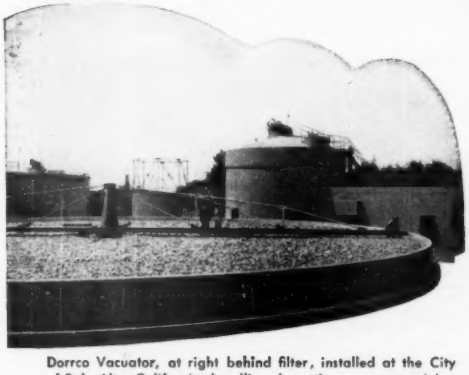
1. As a pre-treatment unit ahead of biologic treatment . . . either trickling filters or activated sludge . . . it will remove scum, grit and a substantial percentage of suspended solids in a single operation.

2. When seasonal loads of canning, packing house or other industrial waste create a scum problem, the Vacuator will relieve the overload, so that the Clarifier maintains satisfactory overall operation.

3. In coastal areas where partial treatment only is permissible, it will adequately remove visual or floating pollution.

With the Vacuator, suspended solids removal will average 40%—B.O.D. removal 25% or better. In *every* type of application the Vacuator will remove grit equalling the performance of the usual grit chamber. These facts are clearly documented by operating results from both municipal and pilot plant installations on all three applications.

A Dorr engineer will explain in detail the applications of the Dorrco Vacuator to your own problem.



Dorrco Vacuator, at right behind filter, installed at the City of Palo Alto, California, handling domestic sewage containing a heavy load of cannery waste. Average design flow, 3.0 M.G.D. . . . peak flow 6.0 M.G.D.
City Engineer: Fabian S. Miller.
Consulting Engineer: Harry N. Jenks, Palo Alto, California.
Contractor: Fred J. Early, Jr., Co., Inc., San Francisco, California.

DORRCO

THE DORR COMPANY, ENGINEERS
570 LEXINGTON AVE., NEW YORK 22, N. Y.
ATLANTA • TORONTO • CHICAGO
DENVER • LOS ANGELES
RESEARCH AND TESTING LABORATORIES
WESTPORT, CONN.
SUGAR PROCESSING
PETREE & DORR DIVISION, NEW YORK 22, N. Y.
ASSOCIATES AND REPRESENTATIVES
Dorr Technical Services and Equipment Are Also Available Through Associated Companies and Representatives in the Principal Cities of the World. Names and Addresses on Request.

DORR
RESEARCH ENGINEERING EQUIPMENT

Don't wait for winter! BAUGHMAN Spreaders *give year-round service*

BLIZZARD RAGES AS COUNCIL BUYS CINDER SPREADER

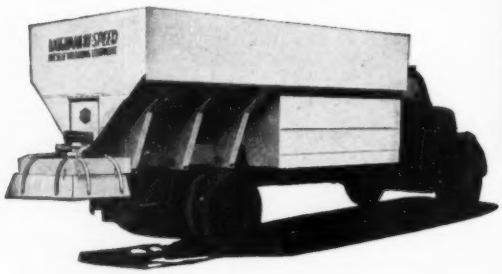
The City Council Wednesday night voted to buy a cinder and abrasive spreader from Baughman Equipment & Service Co., of Jerseyville at $1005.92.

Rising to propose closing of a contract for the cinder spreader, Alderman Wetstein, chairman of the streets repairs committee, glanced out of the window where snow was falling heavily in the first March blizzard.

"This resolution seems a bit late," he apologized; "We could be using a new spreader tonight."

A chief use of the new spreader will be to coat icy streets in winter storms to keep traffic moving. Being of automatic type, only one man, a driver, will be needed on the truck with which it will be equipped. In summer, the spreader will be used in connection with earth street maintenance work.

(Reprinted from Alton Evening Telegraph, Alton, Ill., Thurs., March 10, 1949)



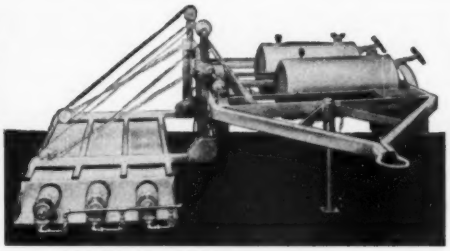
When this winter's crippling storms strike, your autumn purchase of a BAUGHMAN Spreader will prove to be one of the wisest investments you ever made. The BAUGHMAN will have been busy during the fall months on road maintenance and dust control . . . stockpiling sand and gravel . . . spreading lime, fertilizer and seed in parks and airports.

Then, with roads icy, the BAUGHMAN will spread skid-proofing materials from 8 to 30 ft. at speeds up to 25 mph. Regulated volume . . . one-man control. Built-in exhaust heater for all-weather operation. Saves time . . . saves money . . . SAVES LIVES.

WRITE FOR FULL INFORMATION

BAUGHMAN

BAUGHMAN MANUFACTURING CO., Inc.
2101 Shipman Rd. Jerseyville, Ill.
"There is a Baughman Distributor Near You"



Why destroy Base of Pavement to apply a New Top

White Surface Heaters

These machines offer the quickest, cleanest, most economical method for repairing or resurfacing any bituminous pavement.

They melt 1" of old surface in 5 minutes. It can be scraped away and new top applied without damaging base course. This has been successful practice for years.

2 sizes: B-4, above, has 3x6' pan; Model B-1 has 6x6' pan, 6 burners. Square cutting edges. Dual fuel tanks. Hoisting winch. Can be towed on steel wheels, and moved by hand.

Write for Catalog

Elkhart / White Mfg. Co. Indiana

ETNYRE
Street Flushers
"THE MACHINE OF A DOZEN USES"

LEADER MODEL . . . FRONT ENGINE DRIVE

More for your money with this modern street flusher—available in either front or rear engine drive. Standard equipment includes 3 nozzles, 600 G. P. M. pump, 800 to 3000 gallon tank. Powerful, knife-edged streams of water clean streets even under parked cars. Get delivery schedule and prices from your Etnyre dealer or write us direct.

E. D. ETNYRE & CO., Oregon, Illinois

SNOW REMOVAL EQUIPMENT

THAT WEARS WINTER UNDERWEAR

FOR HAUL-AWAY SNOW REMOVAL there isn't a handier helper than a Traxcavator-equipped "Caterpillar" Diesel Tractor. Working in one of last winter's heaviest snowfalls at Tyler, Minn., the rig shown above loaded a 5-ton truck every 6 to 7 minutes. (With bucket lowered it also 'dozed out and widened half-mile of roadway in about an hour and a half.)

JUST looking at the outside doesn't reveal everything an outfit has to have to battle heavy snow with the thermometer below zero. What it has *underneath* counts too. Put a "Caterpillar" Motor Grader behind a snowplow and you have a machine with a combination of qualities and features unsurpassed in equipment of its kind. First, consider its cold-weather "underwear":

1. An independent gasoline motor for quickly starting the Diesel engine at low temperatures.
2. Dependable thermostatic controls that keep engine and lubricating oil at proper warmth for top efficiency.
3. A fuel system that doesn't foul or clog under severe operating conditions.
4. Powered mechanical controls that are not affected by cold.

Then consider such plainly visible features as:

5. Four-wheel tandem drive to put the entire weight of the engine over the driving wheels—for maximum traction.
6. Front wheels that can be leaned either way to keep plow heading into the work when one-waying snow.

Finally, consider its great power, its easy handling, its sturdy solid-weld construction. Remember, it's the *combination of many good things* that makes "Cat" Motor Graders the equipment to buy. (More than 99% of all the motor graders "Caterpillar" has ever built are still on the job.) See your "Caterpillar" dealer before the snow begins to fall. Meantime, use the coupon. No obligation.

CATERPILLAR TRACTOR CO. • PEORIA, ILLINOIS

CATERPILLAR
REG. U. S. PAT. OFF.
DIESEL ENGINES • TRACTORS
MOTOR GRADERS
EARTHMOVING EQUIPMENT

CATERPILLAR TRACTOR CO.
Dept. AC-10, Peoria, Illinois

Send latest snow-removal booklet, "Bucking Snow Costs."

Name _____

Address _____

For *Economical* Maintenance

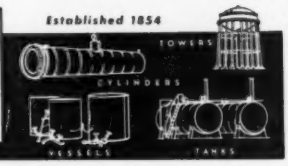
COLE ELEVATED TANKS

● Design plays an important part in tank maintenance. Experienced engineers design Cole tanks for easy access and minimum maintenance costs, as well as for permanence, safety, and dependability.

Send us your inquiries for tanks 5,000 to 2,000,000 gallons — stating capacity, height to bottom, and location. Write for latest Cole catalog—"Tank Talk."

R.D. COLE MANUFACTURING CO.
NEWNAN, GA.

Established 1854



HAND STORAGE BATTERIES

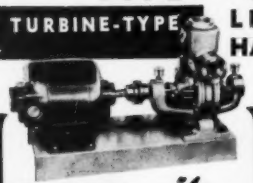
EXTRA HEAVY-DUTY*

For Police Radio Cars, Sanitation Trucks, Snow Plows, Sweepers, Emergency Trucks, Ambulance and Fire Apparatus.

*Heavy, ultra low antimony plate frames . . . hand-pasted, tank-formed . . . heavy glass mats . . . acid and heat resisting microporous rubber separators . . . splash decks . . . double weight cell covers . . . highest grade hard rubber containers.

Hand Laboratory, Nyack, N. Y.
FOUNDED 1930

A SIZE AND A TYPE FOR EVERY APCO TURBINE-TYPE LIQUIDS HANDLING JOB



WATER SUPPLY
CIRCULATING
NON-CLOG
DRAINAGE
IRRIGATION
BOILER FEED
REFRIGERATION
SEWAGE
ETC.

PUMPS "by Aurora" are the product of EXCLUSIVE BUILDERS of FINE pumps

MUNICIPAL
FARM & HOME
REFINERY
DISTILLERY
CORROSIVES
BOOSTER
COND. RETURN
ETC.

Write for CONDENSED CATALOG "M"

AURORA CENTRIFUGAL

DISTRIBUTORS IN PRINCIPAL CITIES

AURORA Always PUMPS

AURORA PUMP COMPANY
66 Loucks St., AURORA, ILLINOIS

your city deserves the best — UNITED STATES BRONZE TABLETS...

for signs, statues, cornerstones, homes, hospitals, schools, municipal buildings

One of the country's largest plants devoted exclusively to bronze tablet work assures you of the *finest* in bronze at *lowest* prices. Free samples, sketches, estimates — prompt mail service. WRITE TODAY FOR FREE CATALOG!

"Bronze Tablet Headquarters"
UNITED STATES BRONZE SIGN CO., INC.
570 Broadway, Dept. AC, New York 12, N. Y.

Distributors—Mfrs. Agents WANTED

For sales to municipal, town, and other governmental departments of a complete line of Traffic and Highway signs. Write stating qualifications, size of organization, and experience in the municipal sales field. Protected territories available—with liberal commission or discount.

Address replies to:

Box 327
THE AMERICAN CITY
420 4th Ave., New York 16, N. Y.

G-E 2-WAY RADIO

Hartford, Conn. wins

8 SAFETY "FIRSTS" IN 10 YEARS

For outstanding accomplishment in fire prevention, the Hartford, Connecticut Fire Department has received eight national first-place awards in ten years. These citations, issued annually by the U. S. Chamber of Commerce, have included six "firsts" for cities in the Hartford population class, and two Grand Awards for cities of *any* size.

Hartford recently equipped its Fire Department with G-E 2-way radio. Mobile units in the pumpers, ladder trucks, and official cars permit Chief Henry G. Thomas (inset) and his officers to control fire apparatus with a minimum of waste motion. The equipment more than pays for itself in efficiency.

Hartford is one of many cities that depend on General Electric 2-way radio in their Fire Department for community safety and service. Call your nearest G-E representative today for detailed information or write: *General Electric Company, Room 1, Building 1, Electronics Park, Syracuse, New York.*

The new G-E 25-50 MC equipment is now available. Write for Bulletin X55-752.

You can put your confidence in—

GENERAL ELECTRIC

KARPARK Automatics

THE KARPARK CORPORATION, CINCINNATI 6, OHIO

Saves
...WITHOUT SACRIFICE

Automatic Operation, so essential to successful meter parking, is maintained with maximum efficiency.

SAVES POWER

Thanks to ingenious coin mechanism, signals are operated, meter is started by the action of inserting coin.

SAVES WINDINGS

With heavy drains on mainspring power eliminated, the KARPARK'S timing mechanism runs for seven to ten days without winding.

SAVES SERVICING

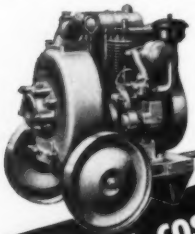
Fewer windings mean fewer service calls —more efficient, more economical maintenance.

The KARPARK offers a long list of savings—savings in time, trouble, repairs, enforcement. Write for the facts.

INVITATION TO RESPONSIBLE DISTRIBUTORS

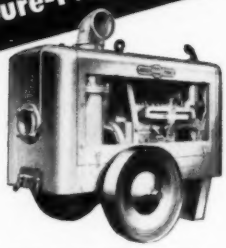
KARPARK'S features mean special selling advantages. Write for full particulars.

KARPARKS ARE MANUFACTURED BY THE HERSCHEDE HALL CLOCK CO.



Get Our New Low Price on Latest Heavy Duty 2"-3" Models with Weather-Shielded Engines.

LOW COST PUMPING with Jaeger Sure-Primes



For **actual** priming speed, vacuum, capacity and pressure, for gallons of water moved per gallon of fuel, for self-cleaning ability, freedom from breakdowns and hours of service per dollar of purchase cost, your Jaeger distributor invites you to compare a Jaeger "Sure Prime" with any pump of like size and rating on the market.

4", 6", 8", 10" Pumps: Standard models to move big volume at low cost; "Pressure" models for work requiring higher heads.

Jaeger housings provide bigger fuel tanks and easier accessibility to engines—an exclusive feature.

THE JAEGER MACHINE COMPANY, Columbus 16, Ohio

COMPRESSORS • MIXERS • HOISTS • PAVING EQUIPMENT

FILTER SAND AND GRAVEL

Produced from an inland pit hence free from river contamination and foreign matter.

Shipment in bulk or bagged.

Many of the larger filter plants throughout the United States are equipped with our products.

Prompt Shipment

Inquiries and orders solicited

NORTHERN GRAVEL COMPANY
Muscatine, Iowa

P. O. Box No. 307 **Phone: 193**

Pittsburgh
Chain-Link
Fence
★
PROTECTION FOR ALL MUNICIPAL PROPERTIES

Pittsburgh
Steel Company

Get Ready for Winter with HAUCK HEATERS

Burn Kerosene or Light Fuel Oil

HAUCK CONCRETE HEATER

Heats aggregates speedily, uniformly in tilt or non-tilt drums while mixing. Simple, easy to run. Burner detachable for thawing and melting jobs.

HAUCK WATER HEATER

For fast heating large quantities of water for concrete mixers or central mixing plants. Conical water heating coil with hot water recirculation system in tank; powerful smokeless heating burner; fuel tank with hand pump and hose.

HAUCK SALAMANDER

Distributes heat over large area; portable, clean, smokeless. Heavy duty heating chamber complete with burner, fittings, hose and hand pump type, welded steel fuel tank.

Also get Catalog on Torch Thawing Outfits; Steam Thawers, Ground Thawers, Tar Melting Kettles, Lead and Compound Furnaces, etc.

HAUCK MANUFACTURING CO.
112-122 Tenth St., Brooklyn 15, N. Y.

SNOW-LOADING For Deadwood, S. Dak.

. . . . A Truckload in only 17 seconds!

● Direct from the windrow, as shown, the Athey Force-Feed Loader cascades snow into trucks — heaping full in an average of only 17 seconds!

That's how Deadwood, South Dakota, helped solve its snow-removal problem — deep in blizzard-buried February of 1949. It's the way cities of all sizes, wherever snow hampers traffic, can save important days and dollars — and promptly get back on their wheels after snowstorms.

For this important duty, a cleated-type snow-belt is used on the Athey Force-Feed Loader. The exclusive "Full-Floating" feeder of the Athey Force-Feed Loader promotes this machine's snow-loading efficiency. It enables loading the snow, wet or dry — loose or frozen — clean or dirty. *As much as 20 cubic yards per minute.* And from windrows up to 3 feet high. Athey Force-Feed Loaders are useful *the year 'round!*

See your Athey-Caterpillar Dealer for more information — or mail the coupon, *today.*

Athey APCOR Products

Athey

ATHEY PRODUCTS CORPORATION
CHICAGO 38, ILLINOIS

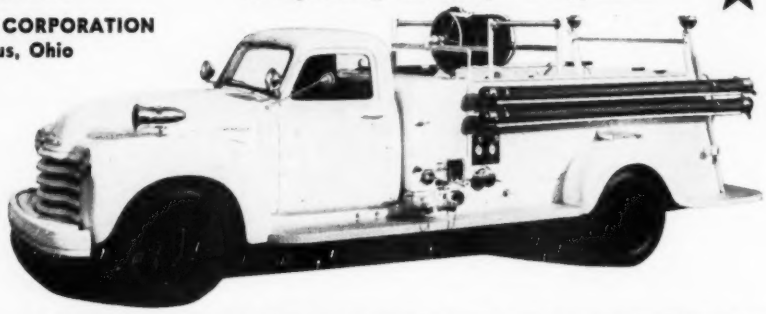
ATHEY PRODUCTS CORPORATION
5631 West 65th St., Chicago 38, Ill.
Gentlemen:
Please send further information on modern Snow Removal with Athey Force-Feed Loaders.
NAME .....
CITY .....
STATE .....
What snow-loading method does your city now use? .....

Seagrave COMMERCIAL PUMPER

The Seagrave Commercial is built on the chassis of either a Ford, International, Chevrolet or Dodge truck. It has all of the exclusive Seagrave features such as Pump Control Panel, Pressure Regulator, Vacuum Pump, All Bronze Centrifugal Pump, Water Storage Tank and roomy equipment compartments. The same engineering skill goes into the manufacture of the Seagrave Commercial as is used in the making of Seagrave Metropolitan apparatus.

Designed by Seagrave to meet the need for dependable fire protection at moderate cost.

THE SEAGRAVE CORPORATION
Columbus, Ohio



MIRO-FLEX MEANS LONG LIFE

★ BAKED ENAMEL — EMBOSSED ON BONDERIZED STEEL

Choose your traffic control signs from Miro-Flex, *America's finest embossed sign line* . . . so sturdy they wear well against wind and weather, so attractive and legible they wear well with motorists.

Uniform embossment (not less than 0.100") provides a rugged unit. Signs built to last of zinc-coated bonderized steel. Finished in highest grade enamels BAKED ON in thermostatically controlled ovens.

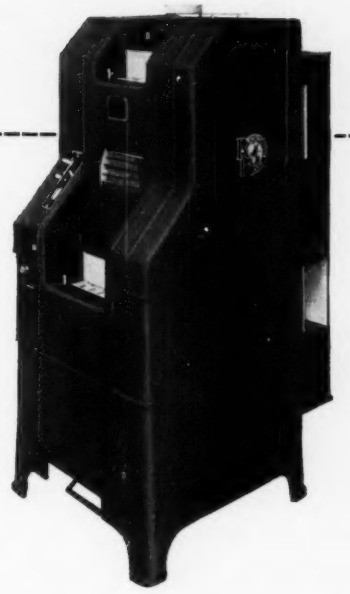
Buy Miro-Flex signs plain embossed or reflectorized, with glass or plastic buttons. Offered standard or special. *Reduce traffic trouble with Miro-Flex.* For detail on this complete sign line, write for catalog.

MANUFACTURED BY

MIRO-FLEX CO., INC.

10-49

1824 EAST SECOND STREET · WICHITA, KANSAS



Announcing

Remington Rand's

new punched-card collating reproducer

—where can it save you money?

Curtain going up . . . on Remington Rand's new Collating Reproducer . . . latest in an unbroken line of outstanding punched-card developments . . . that cut record-keeping costs.

In *one* operation, it compares, punches, interfiles and segregates 90-column tabulating cards—automatically—in order to verify, group extend, code, decode, in-file and out-file. An invaluable aid in all phases of municipal accounting, such as budgets, taxes, payrolls, costs, utilities, police, welfare and public works.

You can lease *or* buy this tested and proved machine . . . available not in 18, not in 12, not in 6 months—but on *normal delivery schedules!*

Full information from all branch offices, coast-to-coast. Or write: Accounting-Tabulating, Management Controls Division, Remington Rand Inc., 315 Fourth Ave., New York 10.

FOR THE FINEST PUNCHED-CARD MACHINES AND METHODS

Remington Rand

there's no substitute for

BOWSER
ESTABLISHED 1885

DIATOMITE FILTRATION

You are Invited-

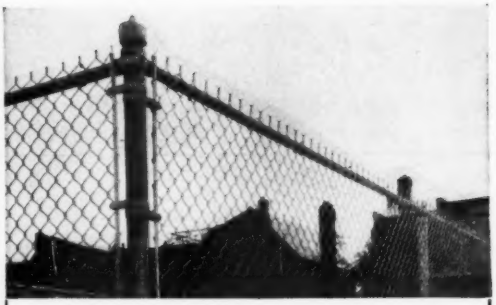
to inspect a Bowser filtered pool in your vicinity. See for yourself how Bowser diatomite filtration keeps the water brilliantly clear—*extra clean*. Ask about its lower operating cost, too!

• • •

Write for the address of a nearby Bowser filtered pool. We'll also send you a copy of "The MODERN Way to filter swimming pool water."

BOWSER, INC., 1396 Creighton Ave., Fort Wayne 2, Indiana

LIQUID CONTROL SPECIALISTS SINCE 1885



BE ON THE SAFE SIDE . . . SPECIFY

REALOCK FENCE

Put your property on the safe side of a tamper-proof Realock® Fence. You'll get permanent protection against trespassing, vandalism and other hazards.

Made of steel wire, heavily galvanized, Realock Fence is nationally known for its rugged good looks, indestructibility, and long-lived economy.

WRITE NOW FOR FREE ESTIMATE

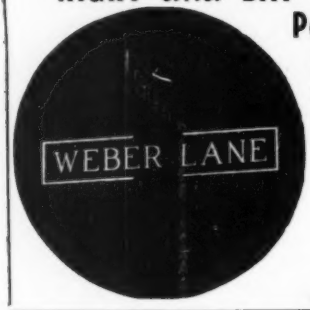
Realock Fence

WICKWIRE SPENCER STEEL DIVISION
THE COLORADO FUEL AND IRON CORP.
THE CALIFORNIA WIRE CLOTH CORP.
BRANCHES & DISTRIBUTORS IN KEY CITIES EVERYWHERE

NIGHT *and* DAY VISIBILITY *with* SUBURBAN STREET MARKER

Permanent Aluminum Street Sign

Low Cost ***No Maintenance***



No effort has been spared to give you the best street sign ever offered: highly visible by night or day, attractive, simple to install, built to last *years* and *years*.

Write for further data or for Complete Catalog #20-5.

LAKE SHORE MARKERS
Division of Lake Shore Pattern Works
654 W. 19th Street Erie, Pennsylvania

"GUNITE" CONCRETE
(Since 1915)

SPECIALISTS IN CEMENT GUN WORK

RESERVOIR LININGS (NEW AND OLD) • CONCRETE AND MASONRY REPAIRS • STEEL ENCASEMENT • FIREPROOFING • STEEL COAL BUNKER, STACK, HOPPER, AND PLATE LINING • SEWER LINING AND REPAIRING • CANAL, DITCH, AND DRAIN LINING.

GUNITE CONCRETE & CONST. CO.
1301 Woodswether Road Kansas City 6, Missouri

District Branch Offices

R. N. Turner, Dist. Mgr., 228 N. La Salle St., Chicago 1, Ill.
B. H. Mueller, Dist. Mgr., 6625 Delmar Blvd., University City (St. Louis), Mo.
Philip D. Barnard, Dist. Mgr., 2036 Addison, Houston 5, Texas.

Branch Offices: DENVER • DALLAS • NEW ORLEANS

See our catalog in Sweet's

AQUA VALVE BOX LOCATOR

Master of the Toughest Location Problems!

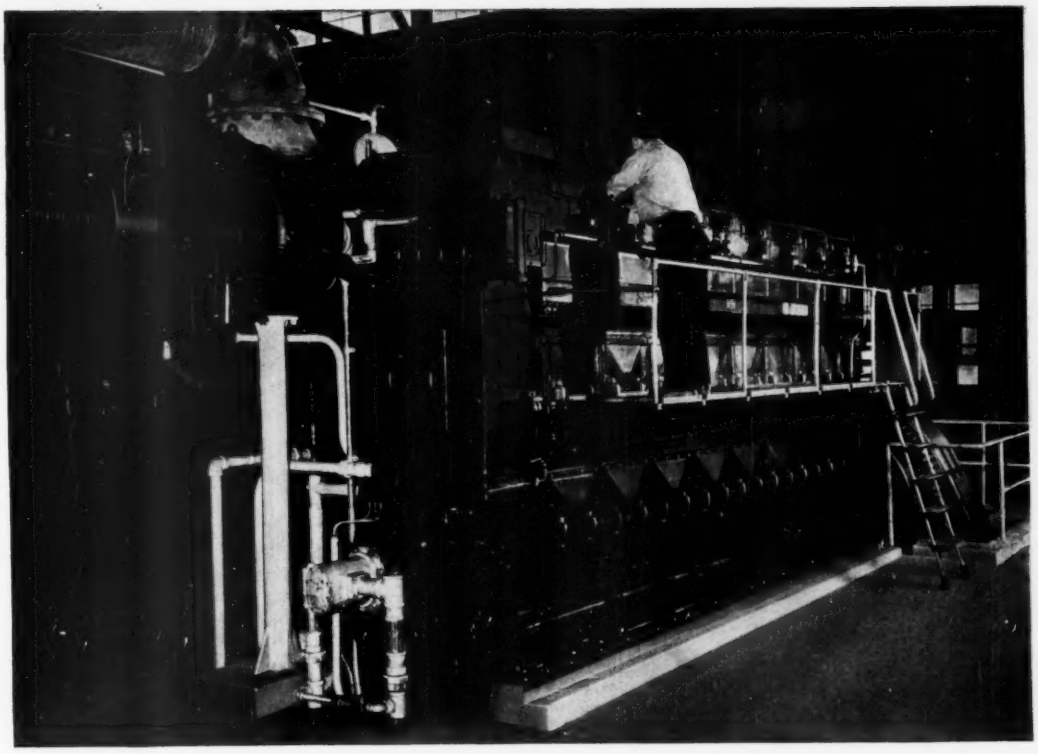
Finds hidden boxes in half the time. Instant top-view reading, no stooping. Guaranteed in snow, ice, any paving!

$29.50 F.O.B. CIN. O

Complete with leather case and strap.

Send no money for 15 day FREE TRIAL!

AQUA
Survey & Instrument Co.
2513 LESLIE AVE., NORWOOD
CINCINNATI 12, OHIO



THERE WAS WATER FOR EVERYTHING

... but only a trickle for power

In 1948 one of the largest power plants in the East was faced with a serious lack of water for hydro-electric power purposes.

They knew they had to prevent a power shortage ... so they decided to install a Diesel generating unit just as quickly as possible. Officials of this utility company contacted our Superior Engine Division and told them about their problem.

In just 72 days from the time the order was placed, Superior had delivered and helped complete the installation of a 1000 KW generator unit, powered by an 8 cylinder, 1440 hp. turbo-charged Superior Diesel. This installation proved so successful that recently they ordered another Superior.

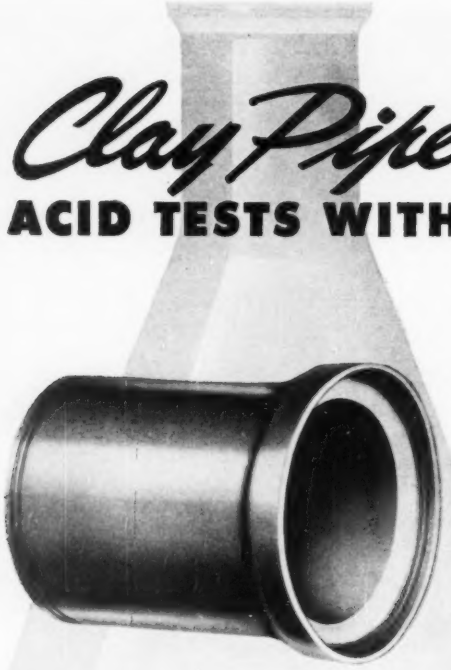
Yes, you can depend on our Superior Engine Division for outstanding service whenever it is needed. And you can be sure that Superior Diesels will provide an equally dependable source of power. We would appreciate an opportunity of showing you the advantages they offer.

THE NATIONAL SUPPLY COMPANY
SUPERIOR ENGINE DIVISION
Plant and General Sales Office: Springfield, Ohio

THE NATIONAL SUPPLY COMPANY NSCO

Superior DIESEL

Clay Pipe PASSES A.S.T.M. ACID TESTS WITH FLYING COLORS



IN A.S.T.M. acid-resistance tests, specimens are immersed in heated acid solutions for a period of 48 hours. Vitrified Clay Pipe emerges from this bath of fiery destruction *without so much as a mar or pockmark!*

Clay Pipe's matchless acid-resistance, plus the great strength and durability it attains when vitrified at temperatures exceeding 2,000 degrees, far exceeds requirements of engineers everywhere for a non-corrosive, non-rusting, non-deteriorating sewerage and drainage material. That's why America's forward-looking companies build for the future with Vitrified Clay. It *never wears out!*

WRITE THE DETAILS TO THE OFFICE NEAREST YOU, IF YOU NEED SPECIFIC INFORMATION ON CLAY PIPE FOR YOUR PROJECT.

NATIONAL CLAY PIPE MANUFACTURERS, INC.
100 N. LaSalle St., Rm. 2100, Chicago 2, Ill.
522 First National Bank Bldg., Atlanta 3, Ga.
703 Ninth and Hill Bldg., Los Angeles 15, Calif.
1105 Huntington Bank Bldg., Columbus 15, Ohio

NEW 40-MILLION-DOLLAR CHEMICAL PLANT *Specifies* VITRIFIED CLAY PIPE — Celanese Corporation's new plant at Rock Hill, N. C., consists of 18 new buildings — all sewered and drained throughout with Vitrified Clay Pipe!

Vitrified CLAY PIPE

CLAY PIPE NEVER WEARS OUT!

C-549-1

BURN..... *all dry Refuse with* ONE *handling!*

Use the New Westchester Utility & Burning Cart

the PORTABLE INCINERATOR

It's so obvious! ONE man . . . with ONE handling . . . *completely* disposes of dry, burnable refuse quickly, effortlessly . . . ONE MAN collects *paper, leaves, brush, grass cuttings,* etc. . . . drops it into this 40"-high Burning Cart . . . strikes a match . . . in a minute it's gone — no more handling! The ash catcher protects grass. Dead ashes are thrown away or scattered to nourish lawns.

CARTING — 18 cu. ft. Several times wheelbarrow capacity.

BURNING—Welded steel. Built to last—for years!

DUMPING — Perfect balance. All loads easily handled.

SAVES MONEY because it SAVES TIME!

With this incinerator-cart one man does the work of many—in one operation. Cart's 18 cu. ft. capacity saves trips. Perfect balance means bigger, easy-to-handle loads . . . of course, burning-on-the-spot saves loading, trucking, dumping, etc. operations. Result: money saved and a better job done!

SHOW TAXPAYERS YOU'RE ECONOMIZING!

With many Municipal and State budgets tight, now is the time you must economize —and still do the job! The initial cost of these long-lasting Carts will be returned through payroll savings . . . Order now for summer and fall use.

Shipped uncrated, by Railway Express, collect. F.O.B. Yonkers, N.Y. **$69.50**
(10% discount in lots of 10)

For detailed description, specifications, write

COUNTY SPECIALTIES
P. O. Box 626, Port Chester, N. Y.

Part of fleet of 27 trucks of Spokane County, Washington, equipped with KIM Hotstarts. This installation makes costly garage building unnecessary.

No cold starts here

KIM Hotstart preheats engines, makes them start instantly, regardless of weather.

Despite cold winter weather, Spokane County keeps its trucks outdoors all year round — and engines start easily every morning. Depreciation is reduced and maintenance costs are unusually low.

KIM Hotstart engine pre-heaters have made this record possible. These are plugged into the electric circuit at night, keep the engines warm and instantly ready to go again.

Engine wear is reduced.
Batteries give longer service.
No lost warm-up time.
Gasoline consumption is less.

For Gas and Diesel Engines

KIM Hotstarts will perform equally well for you. They are used wherever electric current is available. Fleet owners, bus systems, fire departments, contractors, farmers, automobile owners—all use them profitably.

Write for Literature

Let us show you how to avoid winter damage to your equipment. Fill in and mail us the coupon below, and you will receive descriptive literature and the name of your nearest KIM Hotstart dealer.

KIM Hotstart

REG. U.S. PAT. OFF.

KIM Hotstart Manufacturing Co.
West 917 Broadway, Spokane 11, Wash.
Please send literature, prices and name of local dealer.

Name _____

Company _____

Address _____ Zone _____

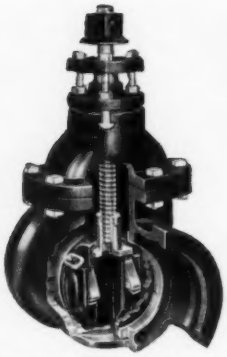
City _____ State _____

IOWA products

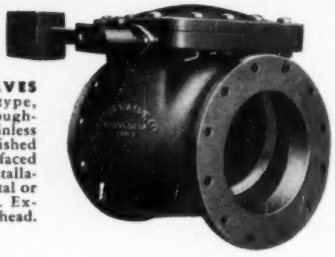
meet your most exacting specification

Superiority of Design, Workmanship, and Materials Assures Efficient Trouble Free Operation . . .

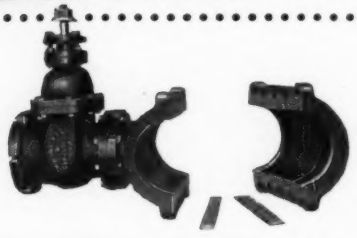
In every job



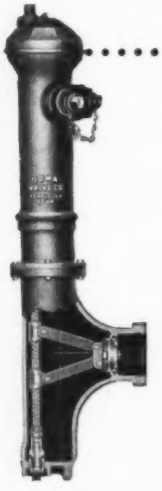
IOWA GATE VALVES—Simple, rugged construction, fully bronze mounted. Parallel seat, double disc type with independent solid bronze wedges and stem nut. Trouble free service assured.



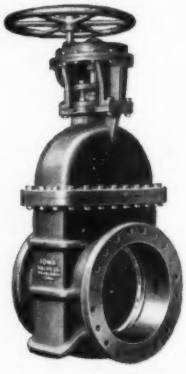
IOWA CHECK VALVES—Balanced swing type, bronze trimmed throughout. Equipped with stainless steel hinge pin. Furnished with rubber or leather faced disc if desired. For installation in either horizontal or vertical pipe lines. Extremely low loss of head.



IOWA TAPPING SLEEVES and VALVES—Sturdily built, easy to assemble and center on pipe. All bolted type with lead strips for tight sleeve connections. Extra long body sleeves with heavy flanges amply protect the cut. All sizes available.

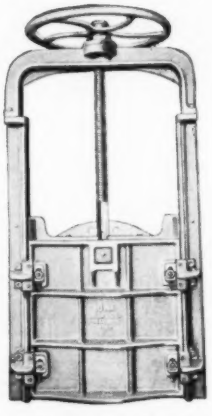


IOWA FIRE HYDRANTS—Latest Corey type conforming to AWWA specifications. Will not geyser when standpipe is broken. Unique design provides unrestricted water flow with extreme low loss of head.



IOWA SQUARE BOTTOM VALVES—Specially designed for throttling service in filter wash and pump discharge lines. Square bottom features can be built into gate valves of any pressure ratings.

IOWA HYDRAULIC VALVES—Superiority of design matched with sturdy construction meets severe, continuous filter service requirements. Available with either iron, brass lined or brass tubing cylinders.



IOWA SLUICE GATES—Heavy cast iron construction, fully bronze mounted. Provided with solid bronze adjustable wedges. Suitable for seating and unseating pressures. Wide range of sizes.

Write today for descriptive literature.

IOWA VALVE COMPANY

201-299 N. Talman Ave., Chicago 80, Ill. • *A Subsidiary of James B. Clow & Sons*

Everything factory-made except the ditch

Many a question mark in water line construction is eliminated when you install a coupled steel water line. You use plain-end steel pipe just as it comes from the mill—assemble it with Dresser Couplings just as they come from the factory.

Both the pipe and the pipe joint are factory-made under ideal manufacturing conditions. There's no field fabrication, nothing to go wrong. Any workman can make permanent, flexible-tight joints every single time with Dressers, and the only tool needed is a wrench.

You get the full advantage of modern, glass-smooth linings, too. Dresser Couplings fit *outside* the pipe. There's no heat to damage the lining, no need for workmen to go inside the pipe.

And, for the life of the line, Dressers provide flexibility at every joint—a cushion against vibration, expansion, contraction and other stresses.

For extra safety, easy installation and permanent dependability, specify a Dresser-Coupled steel line. *Write for Dresser's "Report of Coupled Steel Water Lines".*

SIMPLE • FAST • FLEXIBLE • PERMANENT

Even in cramped quarters, Dresser Style 38 Couplings make permanently tight, flexible joints every time.

PARTIAL LIST OF CITIES USING DRESSER-COUPLED STEEL LINES

Cleveland, Ohio	Boston, Mass.	Newark, N. J.
Philadelphia, Pa.	Syracuse, N. Y.	Savannah, Ga.
Detroit, Mich.	Washington, D. C.	Denver, Colo.
Springfield, Mass.	Spokane, Wash.	New York, N. Y.

DRESSER

"FLEXIBLE-TIGHT"

COUPLINGS

Dresser Manufacturing Division, 59 Fisher Ave., Bradford, Pa. (One of the Dresser Industries)—In Texas: 1121 Rothwell St., Houston—In Canada: Dresser Mfg. Co., Ltd., 629 Adelaide St., W., Toronto, Ont.—Sales Offices: New York, Chicago, Houston, San Francisco.

Modernize – Powerize – Economize!

SEVEN POWER SEWER CLEANING UNITS *offered by* TURBINE

TURCO MAXI-POWER UNIT NO. 2

Write for this catalog and get Maxi-Power specifications.

EXCLUSIVE FEATURES

1. Tubular frame
2. Forged, inclosed gearing
3. One clutch
4. Flange ball-bearings
5. Designed level wind
6. 3-speed transmission
7. High-speed chain drive
8. No-clutch free spooling
9. Selected speeds
10. Bucket swing positioner

Models
VF3—Water-Cooled
ZF3—Air-Cooled

COMPLETE SEWER CLEANING EQUIPMENT

TURBINE SEWER MACHINE CO.
5210 W. STATE STREET
MILWAUKEE, WIS., U.S.A.

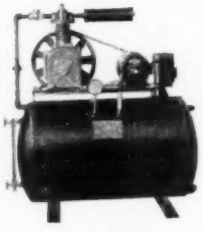
APCO-V-APCO PRIMERS

FOR CENTRIFUGAL PUMPS
AUTOMATIC POWER OR TANK PRIMERS
SINGLE OR DUPLEX UNITS
DUAL DRIVE WITH GASOLINE ENGINE
ALL UNITS ENTIRELY AUTOMATIC

No. 1V-APCO

AIR RELEASE VALVES

FOR VENTING AIR OR GASES
17 TYPES



No. 2V-APCO

VALVE AND PRIMER CORPORATION 127 NORTH DEARBORN ST., CHICAGO, ILL.

GUNITE

PNEUMATICALLY PLACED CONCRETE
DENSE • DURABLE • HIGH STRENGTH

for

Restoring Disintegrated Concrete
Dam, Dock and Bridge Repairs
Steel Encasement and Fireproofing
Sewer, Water Pipe and Penstock Lining
Stack and Bunker Linings
Swimming Pools—Pressure Grouting
Prestressed Tanks and Silos

Get in touch with us for engineering data and estimates

GUNITE CONSTRUCTION CORPORATION
420 Lexington Ave., N. Y. 17, N. Y. • MUrray Hill 3-7899

LEADITE

FOR JOINTING CAST-IRON WATER MAINS

Melted and Poured ***No Large Bell-holes to Dig***
Saves at Least 75%

Leadite is shipped in powder form, packed in sacks of 100 lbs. net each. Leadite tested and used for over 50 years • Leadite joints improve with age.

Be sure it is Leadite and accept no imitations

THE LEADITE COMPANY
Girard Trust Co. Bldg., Philadelphia 2, Pa.

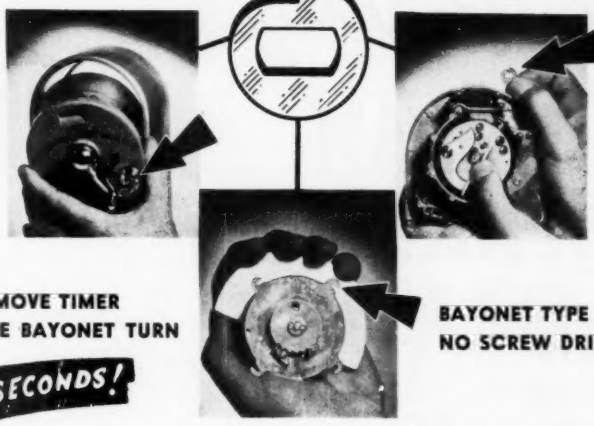
A THUMBNAIL DOES IT NO TOOLS NEEDED

SEE THIS AMAZING MARK-TIME FEATURE DEMONSTRATED

TAKES 10 SECONDS!

1. TURN KEY AND REMOVE HEAD

3 SECONDS!



3. LIFT OUT SAFETY LINK WITH THUMB

3 SECONDS!

2. REMOVE TIMER SIMPLE BAYONET TURN

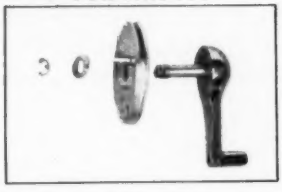
3 SECONDS!

BAYONET TYPE
NO SCREW DRIVER NEEDED

THE SAFETY LINK PROTECTS YOUR PARKING METER AGAINST VANDALISM! The Safety Link in the Mark-Time Parking Meter connects the handle to the meter mechanism. When the "works" are jammed by vandals and pressure is applied to force the mechanism, the SAFETY LINK shears. Gone is the connection between the handle and the "works". The handle then turns free and the "works" remain undamaged! The Safety Link protects your meter against damage just as the safety fuse protects your electrical system in your home. The Mark-Time Safety Link can be replaced in less than 10 seconds and at a cost of less than one cent! That means thrift in any language because it eliminates 90% of the maintenance costs of parking meters.

$1.50 Per Yr.

FOR THIS . . .



These few parts in the manually operated Mark-Time Parking Meter do all the work required by the many parts in the automatic meter shown at the right.

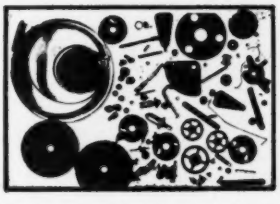
COMPARE THIS FEATURE WITH OTHER PARKING METERS!

For Maintenance

According to an article in American City Magazine, March, 1949, the City of San Francisco went on record that it would cost $10.75 per meter per year to maintain their parking meters. A famous University affiliate says, "A study of 80 cities showed annual maintainance costs as high as $11.00 or $12.00 per meter." Just take a look at the inside of a complicated meter and you'll quickly see the reason why. Then compare what you see with the simple manually operated Mark-Time Meter. The Mark-Time Meter is simply constructed. It does not require a maintenance staff of trained technicians. That's why we can boast and guarantee to keep your maintenance costs at such a ridiculous figure of $1.50 per meter per year. When you buy, buy Mark-Time Meters because they feature "split-second" assembly and no hidden maintenance costs.

$10.75 Per Yr.

FOR THIS . . .



Here is an actual photograph of over 100 extra parts found in a complicated automatic parking meter.

M. H. RHODES, INC., HARTFORD 6, CONN.

WITH WATER RATES FIXED

you can't afford to let your meters

DIE AN UN-NATURAL DEATH

COSTS WAY UP **REVENUE DOWN**

TRIDENT WATER METERS

Tridents are simple, rugged and retain their high initial accuracy over many years of operation. Even after years on the line, new interchangeable parts fit old casings, make them "as good as new," at small expense. Thus Tridents are easily repaired to register at least 90% at ¼ gpm, the minimum acceptable performance for repaired domestic meters.

With present rates and operating costs, can you afford to lose as much as 30 to 40% of REVENUE that might be collected? Yet that is what you can lose, experience proves, when you neglect meters and fail to remove them for the tests and repairs that would quickly renew their youthful accuracy . . . for no meter need "die a lingering death" while you can get new parts that fit old models, as you can with Trident Meters.

The way long-neglected meters lose revenue is well illustrated by the experience of one water department. Out of a lot of 40 meters brought in from 9 residential streets for testing and repair, 36 would not even move on ¼ gpm. And when you consider that 25% of all water flows through domestic meters at 1 gpm or less, you can readily see the losses permitted by "half-dead" meters. Consult your Trident Representative for advice on a testing and repair program.

207

NEPTUNE METER COMPANY • 50 West 50th Street • NEW YORK 20, N.Y.
Branch Offices in Chicago, San Francisco, Los Angeles, Portland, Ore., Denver, Dallas, Kansas City, Louisville, Atlanta, Boston.
NEPTUNE METERS, LTD., Long Branch, Ont., Canada

Norfolk's Plan for Redevelopment With Federal Aid

The redevelopment program prepared for Norfolk, Va., is believed to be the first such comprehensive plan to be completed since passage of the Housing Act in 1949. It shows in unmistakable terms the tremendous benefits which can be derived by municipalities through wise coordination of redevelopment activities within an over-all plan.

By GEORGE M. RAYMOND
Redevelopment Program Planner
Harrison, Ballard and Allen
New York, N. Y.

NORFOLK is a city of some 200,000 people. Its population has increased by some 40% over that of 1940, mainly because of war industries, the great expansion of the Naval establishment in the area, and the continued migration to the city of the marginal farm workers released from the land by the increased mechanization of agriculture — a phenomenon common throughout the South. Norfolk has a proportionately larger share of slums than most American cities, in addition to which it suffers from a severe overcongestion in its central business district because of inadequate highways and off-street parking space. Most of the major highways linking the city with its hinterland stop about a mile short of the business center, where the traffic is picked up by a series of narrow streets and forced to wind its way through the heart of the slum area. In addition, the disturbing symptoms of unplanned decentralization have become apparent.

The redevelopment program was prepared by Harrison, Ballard & Allen, Housing and Community Planning Consultants, for the Norfolk Redevelopment and Housing Authority, whose Chairman is Charles L. Kaufman and whose Executive Director is the able president of the National Association of Housing Officials, Lawrence M. Cox. Upon recommendation of the Housing Authority, and with characteristic foresight, the City Council appropriated money for planning purposes months before the enactment of the Housing Act. To date, the Authority has built and is operating 3,000 dwelling units, among which can be counted two of the most successful housing projects anywhere in the country. The Virginia State Redevelopment Enabling Act, passed in 1946, also gave the Authority redevelopment functions.

The contract with the consultants was signed in March of this year, and it stipulated that the study would be completed within six months. The first task before the planners was the delimitation of the problem areas, and a comparative study of their quality of housing. The American Public Health

An average of fifty families live now on every acre of this congested slum. After redevelopment, this same area will house twenty families per acre.

Association's method of housing-quality appraisal was not used because, within the limited budget available, no more than a spot check could have been performed. Fortunately, the City Assessor had just completed a physical re-assessment study of the entire community, basing his new assessments on such factors as age and condition of buildings, land coverage, and the presence of mechanical equipment in dwelling units.

New Assessment Map Useful

A map of average assessed valuations per dwelling unit per unit of area (land excluded) covering the entire city was prepared first. This map showed very clearly the comparative standards of dwellings in the various parts of the city. To insure greater accuracy, this map was supplemented by a map of dwelling density per acre of land in residential use, a map of fire calls, one spotting cases of tuberculosis by address of patients, and one showing the homes of all persons arrested during the first half of the study. At the same time, 1940 census data as to condition and age of dwellings was mapped at the same scale, for comparison purposes. All this information was checked by means of extensive field surveys.

Since the city lacked an official master plan of major highways, a great deal of time was spent working out a comprehensive highway plan in cooperation with the City Planning Commission. Many parts of the resultant plan would have been utopian save for the possibility of redevelopment of extensive slum areas and a considerable writedown of costs. A belt highway was proposed to parallel the railroad, which rings the central business district, and short of which the greater number of the major incoming arteries now stop. The belt highway would pick them up at this point and serve as a circumferential distributor of traffic whose destination is outside the central business district itself. Thus a large congestion factor would be eliminated. The proposed highway would also help to separate clearly the industrial uses on one side from the residential uses on the other. At the same time, a valuable strip of land, highly desirable for industrial purposes, would be created between the road and the railroad.

Highway and Redevelopment Planning Tied Together

As a result of this and many other new highways made possible by this program, it was recommended that the whole federal-aid highway system within the corporate limits of the city be revised, and that new and more adequate routes be selected instead of the tortuous ones now so used. It is hoped that many of the proposed new highways will be built with federal and state assistance.

The superimposing of the major highway system over the sprawling slum area had the effect of subdividing it into smaller, more manageable units. About 50 to 60 acres in size, these units are large enough to accommodate 1,000 to 1,200 families each. As part of the local contribution demanded by the Act, it is proposed to equip some of them with their own school and recreation grounds. The others will have to continue to make use of existing facilities, though in some cases it will prove feasible at least to enlarge the sites now used by them. Since it was found that adequate shopping exists on the fringes of these neighborhoods, no additional land in them was set aside for commercial purposes. Commercial redevelopment was, however, suggested in other areas.

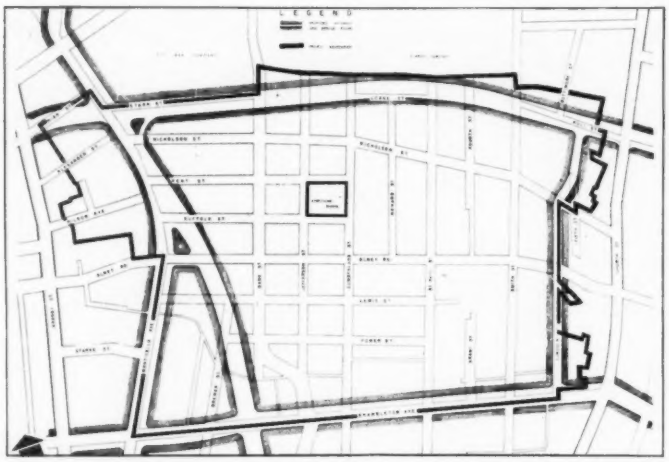
Private Enterprise Role

Once defined and coordinated within a comprehensive plan, each redevelopment-project area will be offered to private enterprise, to redevelop in whole or in part. Areas that are earmarked for residential use and that will not be redeveloped by private enterprise will be turned over to the Housing Authority for low-rent housing projects. This decision was based on a number of determining factors: Owing to the great shortage of suitable land elsewhere, to the extent that these areas were recommended for residential use, they had to be devoted to the rehousing of the families now living in the area. Otherwise the entire program might have foundered on the rocks of the housing shortage, still further intensified by the contemplated extensive demolition of substandard dwellings. An exhaustive housing-market analysis disclosed the almost complete absence at this time of a market for private housing at the currently prevailing rent level among the families to be displaced. It became obvious that, failing their redevelopment by private enterprise, the only use to which these areas could be put and which would be compatible with the great need of the moment would be low-rent public housing.

In this connection, it must be pointed out that the initial program will embrace only a relatively small portion of the central area. There are still sections close to the central business district, desirable for higher-rental housing, which have been left for redevelopment by private enterprise at a more propitious time.

Advantages for Industry

A city-wide employment survey disclosed that Norfolk is essentially a one-industry town. The Navy employs directly one half of the total labor force. Since the salary range of these employees is comparatively low, they do not require the services of a normal percentage of people in service industries. To help the city broaden the base of this top-heavy economic structure, redevelopment for industrial purposes which might result in attracting new industry to the city was considered essential. Two substandard areas were se-



Bounded on three sides by major traffic arteries and by a main shopping street on the fourth, this residential project will create its own street pattern, centered on a new elementary school and playground. A service street separates the housing area from the stores along Church Street. The solid black project-boundary line was drawn to include all substandard dwellings in the area.

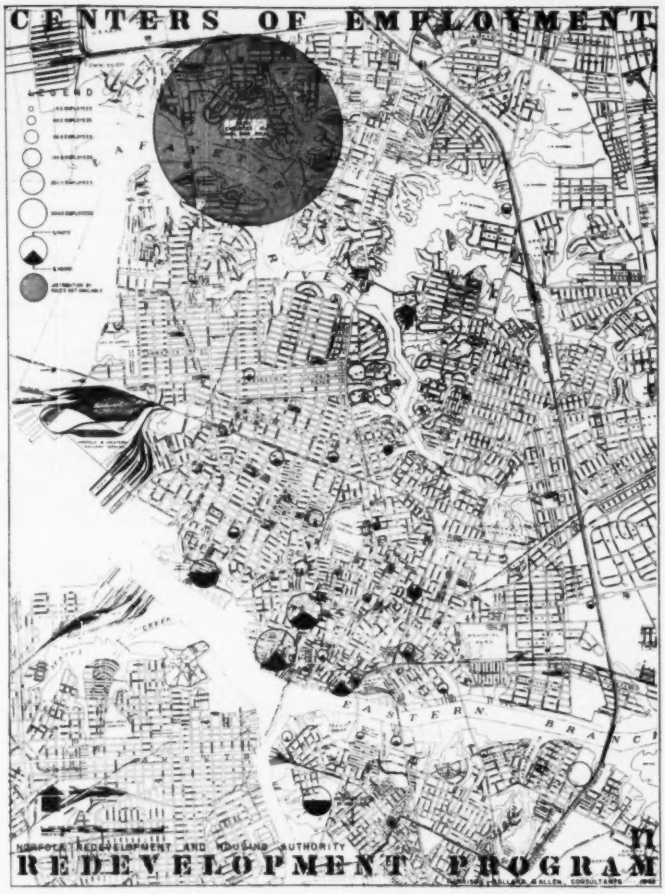
lected by reason of their location for industrial redevelopment, in addition to the strip of land between the belt highway and the railroad mentioned above. If making desirable sites available to industry will not have the hoped-for effect, it is anticipated that the city might have to resort to other means to improve its competitive position. One suggestion is the erection by the city of efficiently planned one-story factory buildings, in which space would be made available on a square-foot basis to smaller enterprises which cannot afford to build premises for their own use. The tenant would be charged a full economic rent; thus in addition to offering an attractive inducement to new industry, the city would embark on what might prove to be a sound revenue-producing enterprise.

A welcome by-product of a strengthening of the economic base of the city would be the creation of a substantial new market for private housing, which in turn would spur further redevelopment efforts.

Resident-Relocation Problems Serious

The relocation problem was assessed by means of a thorough house-to-house survey of family composition and income. This survey, conducted by the consultants with the help of about 100 volunteers recruited by Norfolk's chapter of the Women's Council for Interracial Cooperation, yielded the information that a typical redevelopment project would displace 2,137 families plus 815 individuals. After redevelopment, the same site would accommodate a maximum of 1,000 families, leaving 1,137 families and all the single individuals to be accommodated elsewhere. Only an estimated 5% of all the families living in the area can afford private housing. Even this estimate may be somewhat exaggerated since some seasonal and "between jobs" unemployment may not have been taken into consideration in the computation of annual income.

Norfolk is fortunate in that it is the first American city in which the International Basic Economy Corporation (IBEC) is erecting its semi-detached four-room houses, built with standard road-building equipment, which will rent at $45 per month. These 200 units will arrive on the market in time to be of great help in relocating some of the families whose incomes would disqualify them from admission to low-rent housing. Those who will qualify will be accommodated in the 3,000 low-rent units which Norfolk has received as its allocation for the first two-year stretch of the six-year housing program inaugurated by the new Housing Act.



A comprehensive study of employment disclosed a top-heavy economic structure, where fully half the total labor force is employed directly by the Navy.

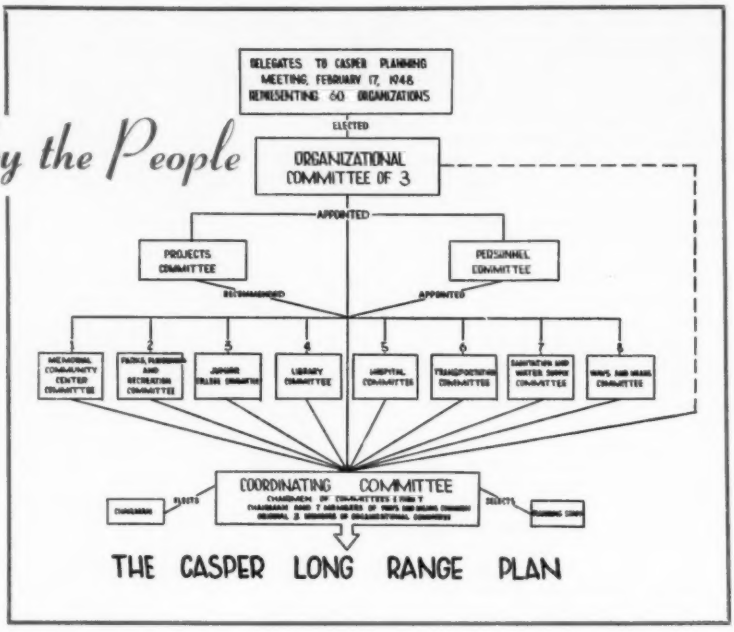
The greatest obstacle to the effectuation of the program will be the relocation of those families whose income enables them to afford rents falling in the 20% gap the law demands between the highest rents chargeable in public housing and the lowest rents at which private enterprise is providing a substantial supply of adequate homes. Also, the large number of single individuals now living in the slum area (40 to every 100 cohesive families), excluded from consideration under existing legislation, will most likely contribute to the further over-crowding of those slum areas whose immediate redevelopment is not contemplated.

Throughout the preparation of this program, the Redevelopment and Housing Authority and the consultants enjoyed the full cooperation of every city department. The School Board and the Planning and Recreation Commissions, the Departments of Public Works, Public Safety, Public Health, and Real Estate were all most cooperative in furnishing information which was lacking. Of greatest help was the understanding guidance of the City Council through Norfolk's able and efficient City Manager, C. A. Harrell. The interest displayed by the entire city government in the progress of the plan gives every reason to expect that the same degree of cooperation will be forthcoming during the effectuation phase of the program. To make the available local funds stretch as far as possible, all city departments have been urged to concentrate on those public works that will be acceptable as part of the local contribution in connection with the contemplated redevelopment projects. In addition, the impact a program of such magnitude will have on the life of the

(*Continued on page* 159)

Government by the People

CASPER'S LONG RANGE PLAN



By **FREDERICK H. BAIR, JR.**
Director, Casper Long Range Plan
Casper, Wyo.

LATE in 1947 the 1940 population of Casper, Wyo. (18,000), was well on its way to doubling as the result of a post-war oil boom. Drilling, refining, distribution, and administrative activities of major oil companies had suddenly made Casper a regional capital for the oil industry. Construction of industrial facilities and residential property was proceeding at a tremendous rate. Trade activity was high. There was a great shortage of housing. Available rental property was scarce, in spite of the fact that almost half of the typically small single-family houses had developed basement apartments or remodeled garages. Vacant lots in settled areas virtually disappeared. Subdivisions were built up rapidly.

With all this activity there was, of course, a demand for additional public services and civic improvements. Schools were becoming crowded. The library and hospital were both too small. The parks, playgrounds and recreational facilities were inadequate. Water pressure in the mains was becoming dangerously low. Parking space was harder to find. Traffic moved more slowly in the streets. The high-school auditorium was no longer large enough to serve as a community auditorium.

There were dangers involved in the situation. Projects could have been developed in a burst of enthusiasm which would have been an unbearable burden to maintain. Projects of considerable merit, competing simultaneously for public funds, might have eliminated each other. Less worthy developments promoted through well-run publicity campaigns might have supplanted more badly needed improvements not so well sponsored. The city was in danger of acting because of day-to-day pressures driving it along the path of least resistance.

There were other undertones in the Casper situation. It had been a boom town before. In the '20's it had reached about the same population. Wiser, older heads remembered how the schools were expanded only to be boarded up later, how houses blossomed and were later wrecked, how rents soared and how, in a few brief years, property owners were offering free rent to anyone who would maintain their houses.

It was in this atmosphere that a small group of Casper citizens met to discuss the problems of the city, and to organize the Casper Long Range Plan, a non-profit organization with membership open to all, to try to bring about orderly civic development.

The group embarked on the following program to achieve their purposes:

1. The city administration's support and cooperation were enlisted.

2. A public meeting was called on February 17, 1948, to plan the framework for the organization and to elect an Organizational Committee. More than 60 local organizations designated

THE TEMPERS OF TAXPAYERS often reach a white heat during public proposals for new or improved city services or the urging of economies. The incandescent taxpayer, however, is a beacon to democracy. So long as he can express himself in public affairs, our social order has not collapsed. The light which he sheds may lead to improvements in the body politic.

But it is the light which is wanted. The heat is incidental. The Casper Long Range Plan is an effort to use the light and avoid the undesirable by-product. Suggestions for desirable civic improvements are developed into an orderly, workable program after city officials and private citizens alike have made an honest study of the factors involved.

representatives to attend this meeting. The mayor and other city representatives were present, as well as other interested individuals.

3. The Organizational Committee appointed a Projects Committee, a Personnel Committee and a Finance Committee. These carried out the following assignments:

(a) The Projects Committee, in a series of public hearings, found out what the people of Casper wanted.

(b) The Personnel Committee assigned people to serve on individual project committees.

(c) The Finance Committee was given the job of raising $20,000 to budget the cost of evolving a working planning organization, including professional direction and other expenses. Financial support came from about 400 contributors. Of this number, about 110 were from organizations, including business and industry, and the remainder from individuals. The largest contributions were $250 each, although there was a committment of $1,000 which has not as yet been drawn against.

4. On the basis of the Projects Committee report individual project committees were formed. A Ways and Means Committee was set up to study methods of financing projects. The Coordinating Committee consists of the chairmen of the seven individual project committees, seven members of the Ways and Means Committee, and the original Organizational Committee. It has as its major continuing assignment the job of establishing priorities and guiding the action program.

5. The director, employed by the Coordinating Committee in April 1949, works with individual committees, bringing together material they need. He carries out studies on population, land use, economic development (in cooperation with the Chamber of Commerce) and such other matters as are basic to the entire program. His usefulness depends on his ability to obtain, analyze, and present information quickly and clearly, and to anticipate the needs of the various committees. He uses as much as possible the information available from federal and state sources, with which he must be familiar, and calls upon the Planning Advisory Service of the American Society of Planning Officials for the latest information or references in specialized fields. The job of the planning director here is not to plan for the community but to make it possible for the community to plan intelligently for itself.

The individual project committees have proceeded toward their objectives at varying rates of speed. The Library Committee has plans and estimates prepared. The Memorial Center Committee has made a survey on community needs, chosen a site, and is in the process of drawing up plans and estimates. The Junior College Committee, after the recent passage of a school bond issue which provided funds for a building, has turned its attention to the curriculum. The Committee on Parks, Playgrounds and Recreation is in the process of making surveys on present use of developed facilities, potential park and playground sites, and the desires of Casper's citizens as to additional recreation programs. The Transportation Committee is waiting for a traffic survey before making final recommendations. The Hospital Committee is weighing community needs and attempting to arrive at a decision as to whether to press for building a second hospital or the construction of an addition to the present edifice. The Ways and Means Committee has considered the amount of city and county funds available and has thus to some extent defined the financial problem.

Water and Sanitation Report

The Mayor and City Council passed a resolution on June 15 approving and adopting the report of the Water and Sanitation Committee. This report did three noteworthy things, in addition to the presentation of the actual recommendations:

(a) It stated clearly a long-range program for city action which was developed through joint efforts of city officials and private citizens and has the official approval of both.

(b) It related the elements involved and established priorities. It may have prevented premature construction of a $2,000,000 sewage-treatment plant and intercepting sewer.

(c) It resulted in the education of a number of citizens as to the water and sanitation needs of the community.

Membership in the Casper Long Range Plan is open to anyone. There is no scale of dues, nor any requirement that a contribution must be made before an individual can participate on any of the subcommittees.

Planning Becomes Official

That Casper is on the way to being not only a city which has planning, but a city in which recommendations of the planners are followed, was further demonstrated by the action of the City Council in July when it took steps to assure that planning will become an integral part of the city government. Working with members of the city administration, the Long Range Plan is to prepare recommendations as to the form and responsibilities of a city planning agency. This agency will take over the planning function from the Long Range Plan about April 1, 1950, when the funds collected through private subscriptions will be exhausted. The sum of $3,000 has been set aside in the city budget to finance the operation of the city planning body and its staff from April 1950 to the beginning of the new fiscal year in July.

Now, in September 1949, it looks as though Casper's population has leveled off at about 32,000. Business is still good. Residential building is still going on. Rental property is still hard to find. But the construction boom in the oil industry is over. Things are settling into a more nearly normal pattern. Casper will be much better prepared for the future as a result of its recognition of the importance of planning.

28 States Require Annual Property Valuations

PROPERTY in 28 states as well as in the District of Columbia is now required to be revalued annually for the purpose of assessment, the National Association of Assessing Officials reports.

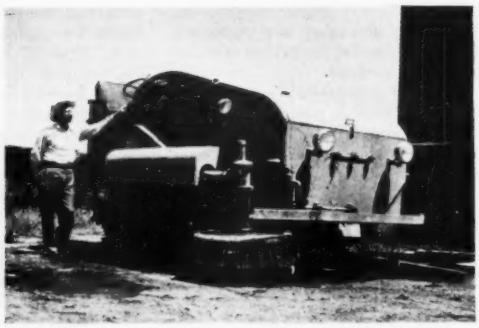
A study of the frequency of assessment of real property in the August issue of the *Assessors' News Letter* reveals that in the last decade four states have adopted regulations requiring annual assessment. Most recent to join this group were Montana, Oklahoma, Washington, and Pennsylvania, with the exception of Allegheny County (Pittsburgh).

The laws of North Dakota, Nebraska, Minnesota, Arkansas, Mississippi, and Tennessee require that property be valued biennially. In six other states—New Mexico, Kansas, Iowa, Illinois, South Carolina, and Vermont—revaluation is required every four years.

Indiana and North Carolina provide that real estate must not be revaluated more often than every fourth year. Ohio requires reassessment every sixth year. In Virginia, real estate is reassessed every eighth year, with the exception of certain cities which reassess annually.

Four states—Maryland, Maine, New Hampshire, and Connecticut—require general revaluation at infrequent intervals. These intervals range from five to 10 years.

The roller packs the street surfacing making it ready for traffic. The surfacing material consists of 4% asphalt applied as an MC-3 cutback and blended with aggregate.



This Wayne sweeper has more to do than to keep the streets clean. In addition, it picks up for re-use the excess cover aggregate used in the sealing operation.

Mile-High Paving

PRESCOTT, ARIZ., DEVELOPS CITY-OPERATED RESURFACING PROGRAM

NOT often does one have the opportunity of building a street "a mile high." But in Prescott, Arizona, city engineer Cecil Overstreet has been laying down a smooth asphalt street-surfacing approximately 70 feet higher than a mile for the past two summers, and will probably continue to do so on a good comfortable schedule for his city of 8,000 for several years in the future.

The reason that it is easy for Engineer Overstreet, of course, is that Prescott lies in the Arizona highlands, at an official recorded elevation of 5,346 feet. Its favored location combines rugged Western beauty with a healthful climate.

Still another reason that makes the work easier in Prescott, and for that matter for any city in Arizona, is that 10% of the gas-tax funds collected in the state are earmarked for city street maintenance. In 1946, Arizona cities, after a vigorous drive, managed to get this 10% slice of the gas-tax income. They argued long and logically that although cities and towns pay the largest share of the state gasoline taxes, under the law existing at that time, they receive nothing in return. The law that was passed provides that a separate fund be set up for street purposes only. This is the fund that Mr. Overstreet uses to lay his "mile-high" street-surfacing.

Most of the streets in Prescott were built between the years of 1920 to 1927. Since then, with bond limitations placing an automatic ceiling on municipal activities, the streets have had to serve with little or no maintenance. The original streets were paved by the usual property assessment method. Some were laid on concrete bases, and some in the residential areas used a pit-run gravel base for a support. All carried a 2-inch Warren-type Bitulithic wearing surface.

In planning his work, Mr. Overstreet decided the first year to assemble a complement of street-construction equipment adequate to do the job. Out of his gas tax and regular funds, he

Placing the material with a blade grader requires skill.

The Littleford trailer-distributor, applying hot asphalt.

purchased a Galion patrol grader, a Littleford trailer distributor, a 5-to-8-ton Austin Western steel-tired roller, a Unit half-yard power shovel, and a Hough loader mounted on a Case tractor. He also obtained three 2½-ton International dump trucks from Army surplus and one 2-ton Ford dump truck. And finally he completed his list of equipment by purchasing a Wayne street sweeper, which he puts to a rather unusual duty.

If he had all the equipment he wanted, he would probably have a small hot-mix asphalt plant. And some time, when the financial picture looks brighter, he expects that he will. But at present he has a very acceptable substitute method.

Mix Used

The surfacing material consists of 4% asphalt applied as an MC-3 cutback heated to 180°; this is blended with aggregate so that the total mix is 40% stone with a ½-inch maximum size and 56% sand. Five percent of the aggregate passes the 200-mesh screen.

To blend this combination, he uses what he calls a "mixing table." This is a flat area of ground about 150 feet in diameter. On this table enough aggregate is windrowed in a huge circle to use a 10,000-gallon car of cut-back asphalt. The practice then is for the patrol grader to lay out a portion of the windrow around the circle, followed immediately by the distributor applying the hot asphalt. The grader then windrows this portion and lays out another segment of the aggregate, which in turn is shot with asphalt. When the asphalt has been administered to the entire mass, the grader turns it over eight times to complete the mixing. In cool weather this may be increased to ten or twelve turns.

The mix is then scooped up with the loader or the power shovel, placed in the trucks, and delivered to the streets.

Before the surfacing is applied, however, the street is checked carefully for weak points. All cracks are blown clean with the city-owned Schramm air compressor and the cleaned surface is primed with a light application of MC-3 cutback asphalt. This usually averages less than 0.1 gallon per square yard.

Spread by Grader

To apply the 1¼-inch wearing surface, Mr. Overstreet brings in his Galion patrol grader. The grader operator spreads the mix as closely as he can to a 1¼-inch thickness, and the roller applies the finishing touches. This is a leveling course that brings the low spots to grade. Here again Mr. Overstreet points out that he would like very much to have an asphalt paver, and he may get one even before he gets the hot-mix asphalt plant. In the meantime, however, his grader operator has developed a commendable skill in laying down a surfacing of the prescribed thickness.

Cover aggregate is applied by a Buckeye spreader to the asphalt sealcoat.

For a final seal, a quick-breaking emulsion is applied at a rate of about ¼ gallon per square yard. A Burch spreader then distributes rock chips over the emulsion at 30 pounds per square yard. Finally, the Wayne sweeper comes out from its regular street-sweeping tasks and picks up the excess rock chips that were not tacked down. This cuts the waste, and the loose chips are reused.

The 1948 resurfacing program covered six blocks of street 70 feet wide. This year Mr. Overstreet will finish 10 blocks, averaging 50 feet in width. Next year he expects to have every paved street in town resurfaced. In the following years, he anticipates paving unimproved streets, using gas-tax funds to reduce materially the property assessment.

The new paving projects are handled entirely with city crews and equipment, with the City Engineer making the plans, estimates, and petitions. The petitions are circulated and the total amount of the assessment due must be paid in full before the project can be started, as cities in Arizona cannot have an operating surplus by which they could do paving or other work in advance.

Loader Repairs Traffic Light

TOWN Engineer Fred Galloway, Montclair, N. J., always makes it a definite point to select equipment that can perform all sorts of tasks well. The work that he assigns to his new Hough Payloader is an excellent example. Normally he uses it for various loading operations such as moving dirt, picking up street sweepings, and other tasks. When the need arose to hoist a new traffic light head on its standard, the loader again came into operation.

The loader at one of its usual jobs—hoisting trash into an awaiting truck.

The new Hough Payloader eases a new traffic-light head onto its standard.

"Four-Phase" Fire Protection Will Guard New Nottingham Filtration Plant

Heat detection, smoke detection, carbon dioxide discharge and atmosphere analysis work together to prevent serious fire in activated carbon

By W. E. MORGAN, JR.
Manager, Industrial Division
Walter Kidde & Company, Inc.

THE multi-million-dollar Nottingham Filtration Plant, being built for the city of Cleveland and planned for completion in 1951, embodies the latest in architectural design and mechanical and electrical equipment. Havens and Emerson, designers of the project, have left no stone unturned in creating a water-purification plant that will serve the people of Cleveland well for many years to come.

Activated Carbon a Fire Hazard

Realizing that activated carbon—being used at Nottingham to remove odors and objectionable taste from city water—constitutes a fire hazard that could seriously curtail operation of the plant, the designers have made provision for adequate, dependable fire protection from the ground up.

With the cooperation of Walter Kidde & Company, the consulting engineers prepared specifications for equipment that will keep the Nottingham Plant safe from the threat of serious fire.

Activated carbon facilities at Nottingham are contained in the Administration and Chemical Building, a six-story structure, 185 by 90 feet in plan. The building contains eight carbon-storage rooms on floors one, two, five, and six; a carbon-feed room on the third floor; and a carbon-charging room on the fourth floor—10 hazard areas in all.

Activated carbon is fed by two Omega feeders with charging hoods and dust-removal equipment, built-in scale and weigh hoppers, agitators, recording equipment, under- and overfeed alarms, and weigh and hopper alarms. The dry feeders are capable of handling 15 to 750 pounds of activated carbon per hour, with hopper capacity of 290 cubic feet.

Fire Protection Design

After exhaustive study of the fire hazards involved, Kidde engineers developed a specification based on "four-phase" fire protection for carbon storage, feed, and charging rooms. The four phases are:

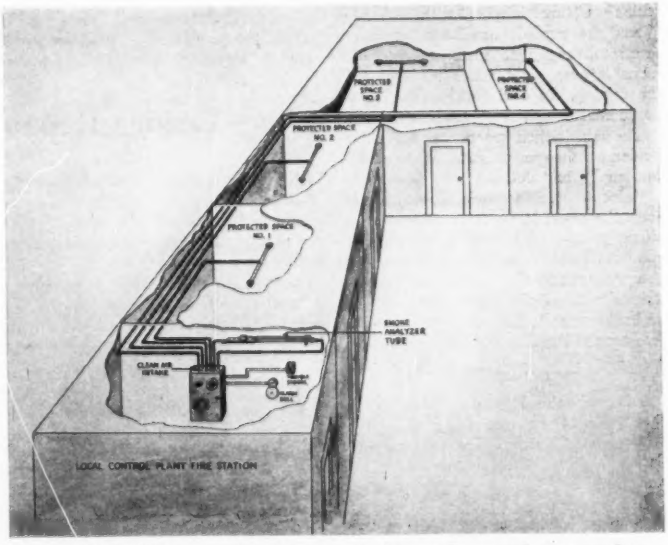
1. Heat detection
2. Smoke detection
3. Carbon dioxide discharge to create inert atmosphere
4. Atmosphere analysis and maintenance of inert atmosphere until extinguishment is assured.

Most of the principles on which this protection is to operate are not new. They have been used for many years in marine and industrial fire-detection and extinguishing systems. But their practical application to this special fire problem at Nottingham is a new combination of industrial and marine fire-safety principles.

The heat-detection apparatus consists of a number of fixed-temperature thermostats located at strategic points in each of the 10 protected spaces. Thermostat setting is slightly above normal room temperature. If the temperature of any space reaches this predetermined level the thermostats signal the unusual heat condition at a central control station in the building. In addition to designating the space afire, the thermostats also actuate audible alarms.

The smoke-detecting system will pick up small traces of smoke such as are present in the early stages of a smouldering fire, before flames actually break out. Detection of smoke in any of the 10 carbon-handling spaces results in an audible alarm and a visual signal indicating which room is in trouble.

After an alarm indicating fire has been sounded, the proper number of carbon dioxide cylinders is discharged into the space in trouble, through manual release. This creates an inert fire-



Placing of Multi-Zone smoke detectors, analyzer tubes, smoke accumulators and alarms at Nottingham will be like this, but special valving will let carbon dioxide through the same piping as is used to draw air samples from 10 spaces.

smothering atmosphere in the space. Since the spaces are of different volumes (largest 17,700 cubic feet), the major battery of cylinders is subdivided into smaller groups. This effects an economy in the use of an extinguishing agent, as it permits discharge of only as much fire-killing gas as is required at any one time.

Following the discharge of carbon dioxide, a meter is employed to analyze the atmosphere within the space in trouble. As soon as the concentration of carbon dioxide is reduced by leakage or dissipation to a point below what is required for deep-seated fires, additional gas is discharged into the space, until complete extinguishment is assured.

The entire fire-protection system guarding the Nottingham Plant has been designed around the principles of flexibility within the bounds of safe practice and economy of equipment and operation. A simple three-way valving arrangement in the central control room makes it possible to utilize the smoke-detection pipelines for distribution of the carbon dioxide.

Kidde's new Multi-Zone Smoke Detectors will constantly sample the atmosphere in all protected spaces and draw samples to smoke-analyzer tubes at the control station. Three Multi-Zone units, each with its own smoke tube, have an ingenious valving arrangement which passes samples from each space, in rotation, through the analyzer tubes. Between samples the smoke tubes are purged with fresh air to ensure correct sampling and signaling.

If excess heat or smoke is detected, a three-way valve in the smoke-sampling line is operated manually, closing the line to the smoke tube and opening it to the carbon dioxide cylinder manifold. Depending upon the size of the space afire, a group or groups of cylinders are directed into the space via direction valves through the same pipeline previously used for atmosphere sampling. Thus, a single pipeline serves for both smoke detection and carbon dioxide discharge, permitting considerable savings.

Cylinders Grouped

The cylinder battery which supplied the Kidde fire extinguishing system is made up of sixty 50-pound-capacity cylinders, divided into four groups of 10 and four groups of five. The battery is installed in the central control station adjacent to the smoke- and heat-detection equipment.

Carbon dioxide is stored as a liquid under pressure of 850 pounds per square inch. When released from the cylinders, it rushes under its own power through the distribution piping. As it discharges, the carbon dioxide actuates pressure trips in the piping which, in turn, release self-closing doors. This prevents flow of outside air into the fire zone and serves to isolate it for total flooding with inert gas.

When it is discharged from Multijet nozzles located along the walls of the fire space and hits the air, the carbon dioxide expands to 450 times its stored volume and penetrates to every nook and cranny of the space. Being completely inert, carbon dioxide is absolutely harmless to machinery and materials with which it comes in contact, and it is a non-conductor of electricity.

Another important advantage of carbon dioxide over other extinguishing agents is that it leaves no messy residue and does not contaminate chemicals. It cannot, therefore, adulterate or destroy the activated carbon to be used in quantity at the Nottingham Filtration Plant.

While the fire problem at Nottingham is on a large scale, involving 10 separate hazard areas, the arrangement of components of the Kidde system called for in specifications is highly flexible. They can be adapted to similar plants of any size simply by varying the number of cylinders, thermostats, smoke detectors, smoke accumulators, directional valves, discharge nozzles, pressure trips, and alarms. Regardless of size and number of spaces to be protected, "four-phase" fire protection can eliminate the threat of serious fire.

How Allegheny County Progresses With Smoke-Control Program

SMOKE-CONTROL—key project in a vast improvement program now in progress in Pittsburgh and Allegheny County — has already produced such remarkable results that it has become the symbol of an era of new growth and greatness in this center of America's industrial power.

Allegheny County's smoke control ordinance became effective on June 1, 1949. How the ordinance was prepared and is operating was explained by Thomas C. Wurts, engineer-in-charge of smoke abatement in the county, in a paper delivered before the inspectors' conference at the recent convention of the Smoke Prevention Association of America.

An ordinance covering smoke from all sources became fully effective on October 1, 1947, in the City of Pittsburgh, largest municipality in Allegheny County, which is made up of 129 separate cities, boroughs, and townships with a total population of 1,485,000.

People realized, however, that in addition to a city ordinance a county-wide smoke law was required in order to extend the benefits of smoke control to the whole community.

In view of the area's tremendous industrial and mining facilities, the crux of the problem was how to draft a realistic smoke-abatement ordinance that would be fair to industry as well as the public and yet achieve effective results.

A 17-man Advisory Committee, under the chairmansh'p of Dr. Edward R. Weidlein, Director of the Mellon Institute of Industrial Research, and representing the top talent of industry, labor, and civic leadership, was appointed by the Board of County Commissioners to draft an ordinance.

Subcommittees to study and recommend regulations for particular industries were set up for the steel and allied industries, railroads, power and heating plants, and miscellaneous industry.

Each chairman got in touch with the industry under his jurisdiction, drawing upon the community's best engineering talent for membership on technical subcommittees responsible for the provisions of the ordinance covering their industries. In this way every segment of the community contributed to the drafting of the county-wide law.

The process took approximately 18 months. When the proposed ordinance was presented to the Advisory Committee, it was adopted unanimously. Mr. Wurts pointed out that this was an outstanding achievement, especially in consideration of the fact that the Committee represented such diversified points of view as the United Mine Workers, the Teamsters' Unions, and United Smoke Council, as well as presidents of many large industries.

Even before the county-wide ordinance was enacted, the steel industry and the railroads began voluntary action to curb smoke.

Industry has inaugurated a broad research program to study methods for the control of smoke and other fumes from bessemers, open hearths, and blast furnaces, and is currently spending huge sums on modern combustion equipment and other facilities which, in many instances, will go beyond the requirements of the ordinance.

"Allegheny County's smoke control ordinance is the result of enthusiastic interest and cooperation of all elements in the community," Mr. Wurts stated. "It is a tribute to a team made up of industry, labor, and the citizen, and having but one goal—the welfare and improvement of working and living conditions in Allegheny County."

View of the children's play shelter in Peckham Health Center.

Britain's Pioneer Health Center

The Peckham Experiment, in a 2,000-family community, offers ideas for local health and housing authorities here

By BLEECKER MARQUETTE
Executive Secretary
Cincinnati Public Health Federation
Cincinnati Better Housing League

PERHAPS the most interesting of all health centers is the so-called "Peckham Experiment" on the outskirts of London, England. Howard Marshall, distinguished radio commentator, speaks of it as the "most exciting building in the world." *The Daily Herald* (London) says that it has been called "The greatest social experiment of our time." Just since the end of World War II, according to the *Herald*, the Center has had 12,000 visitors from all over the world.

Does the "Peckham Experiment," otherwise known as Pioneer Health Center, have any special significance for future housing developments in America? The opening paragraph gives more than a hint that the Center is completely unlike any now in existence in the United States or probably anywhere else in the world. It is far more than the child-health station or the clinic located in numerous public-housing developments. Improving standards of physical, mental, and social health involves a great deal more than good shelter. It involves more even than good shelter in a good neighborhood which we have come to accept rather generally as our goal. Worthy as that goal is, those of us having a good home in a good neighborhood know that other things are needed to promote optimum health.

The so-called "Peckham Experiment," initiated more than 20 years ago, was the dream of two English doctors, Dr. Scott Williamson and Dr. Innes Pearse. They themselves called it "the first laboratory in the world for the study of human health." These doctors were schooled in research. They had come to the belief that the road to health

For further information on the Peckham Health Center, see book, *The Peckham Experiment, A Study of the Living Structure of Society*—By Innes H. Pearse and Lucy H. Crocker. Yale University Press, New Haven, Conn. 1947. 333 pp. $3.50.

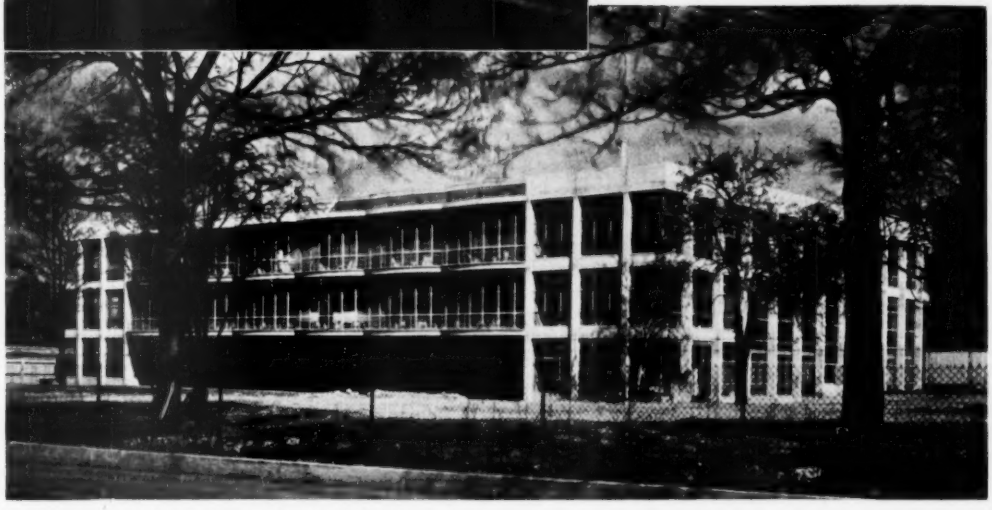
cannot be found simply by studying the nature of disease. One cannot quarrel with this conclusion. Curiously enough, we still have no effective means of measuring health. In fact, we try to determine the status of health by studying death. Our data on causes and numbers of deaths are far more accurate and complete than our knowledge of the extent of sickness. Even if we had better morbidity statistics, we still would not know how to measure health, the things in which the two British doctors interest themselves.

Positive Health Building

Their "Pioneer Health Center" is different because it deals not with the treatment of disease at all and with the prevention of disease only in part. Primarily its aim is positive health building. These "biologists," as they call themselves, selected for the experiment a community of about 2,000 families of varying income but without any of the extremes of poverty. After the first several years of operating in a small, makeshift building, they decided they would need a new and larger center especially adapted to their purposes, which would be a kind of group recreational center as well as health center. They wanted to observe the members of the families in a social setting. For that reason they had the partitions made mostly of glass. This, they felt, had an additional advantage. It encouraged everyone to want to take part in the activities. People who felt they were rather awkward in athletic things might be encouraged to "make a try" if they saw others not much more agile than themselves "doing all right."

They laid down two absolute requirements: all members of the family must join and all members must agree to use the Center. Their emphasis was on family participation because of their belief that members of families are tending to drift apart owing to the fact that they have no opportunity to enjoy their leisure hours together. Provision was made, therefore, for a great variety of recreation — including a swimming pool, cafeteria, club rooms, and a gymnasium. There is also a nursery for young children to allow their mothers to be carefree while they swim or play cards.

A basic objective was what the English doctors called the "periodic health overhaul." Curiously enough, English families apparently accepted the idea of the "health overhaul" much more readily than we seem to . They responded— all members of the family, without exception. An interesting thing about it is that the doctors undertake to give no treatment. In fact, in their conference with the family, they tell what they found but give no advice unless it is asked for. However, when given an opportunity, they help plan for whatever treatment is necessary and they particularly try to arrange that mem-



The picture at left shows two young members of the Peckham Health Center watching swimmers in the pool. Below is the Peckham Health Center, supported by fees and voluntary contributions, which has aroused world-wide interest and offers ideas for publicly supported ventures in this field. Doctors, nurses and patients are all members of this center, as if it were a club. The patients go there both when they are well and unwell; there are a restaurant, a nursery, and facilities for swimming and for discussion groups. In this way the doctors and nurses know their patients intimately as human beings.

bers of the family may go to a clinic or a physician at a time that is convenient for them.

The sponsors of the Pioneer Health Center believe that "the study of health involves the study of the springs of human behavior." They feel that they are experimenting with a new art—the "art of cultivation of the health of man and of his society."

Their early examination disclosed that nearly 90% of the examinees had something the matter with them but that 59% of them were not aware of it. They believe that under ordinary conditions this latter group would drift into disease but that the effect of the Pioneer Health Center approach is to push them toward health.

Development of social life for the family is another major objective. They are convinced that one of the most important contributions is "the release from social loneliness and with it the increase in physical, mental, and emotional energy."

The Center's Current Financial Struggle

The war put a temporary end to this Center, as well as to many other efforts toward social improvement in England. However, the Center was reopened after the end of the war in response to a genuine demand by some 500 of its former clients.

It had been hoped that the Center could be made self-supporting by fees collected from the participating families, but the program and the facilities have proved to be more costly than moderate-income families could support. The sponsors are appealing for £50,000 to keep the Center going. The outcome is in doubt. The doctors have been asked whether there has been any evaluation of results since the Center opened. The answer is that because of the critical shortage of funds, this has been impossible and will be until the financial problem is worked out.

The recent medical examinations have established the encouraging fact that the health status of the families did not deteriorate during the war. And, interestingly, in the recent examinations there had been practically no diabetes. But, as the doctors state, the absence of disorder is no criterion of health. There is little doubt that Dr. Williamson and Dr. Pearse are on the right track in pursuing their objective of building the robust kind of health that enables us to enjoy the fullness of life and to work with maximum efficiency.

How does all this relate particularly to housing in this country? Obviously, the Peckham Experiment is a health project. On the other hand, there is something to be said for the proposition that our approach to the rehousing of our people should be broader than housing alone. The development of parks, playgrounds, recreation areas, and tot play space, in connection with public housing projects has certainly been sound, as has also the provision by cooperating agencies of child-welfare stations and health-clinic facilities. There would certainly seem to be much to commend trying out in some housing projects the kind of combined recreation and health center developed at Peckham with the emphasis on positive health building.

As the new public-housing program proceeds under the new Housing Act, local recreation and health departments might be willing to join in setting up demonstration centers of this kind. If we could add to the provision of good homes in wholesome neighborhoods, comprehensive recreation facilities for the family, and a health setup that would emphasize the development of optimum health, something of constructive value will perhaps result. There might well be added to the Peckham approach more emphasis on health education in general and on mental-hygiene education in particular. The London experiment was confined to a middle economic group. Here the idea might be tried out with lower-income groups. If the proposal is sound, there is, of course, no reason why it should not be applicable to large-scale private-enterprise projects for people of moderate income, such as, for example, the developments built by life insurance companies.

Strengthen Family Life Ties

Dr. K. E. Barlow, Coventry physician, is a strong advocate of the Pioneer Health Center approach in the rebuilding of Coventry. Dr. Barlow's particular concern stems from the fact that he feels that family life is presently facing disintegration and also that society is in a "state of social starvation." He argues that, unless we do something to build strength into family life, "by the time we have solved the housing problem along the lines now proposed we shall probably no longer have enough families to live in our brave new houses."

If we cultivate the home and develop family-health clubs, Dr. Barlow believes that the inclination of families to have children will be heightened. Incidentally, he makes a strong argument for allowing families the opportunity to contribute something of their own to their homes.

Of particular interest to housing specialists is Dr. Barlow's challenge that at present through our approach to housing we are tending toward the stratification of social groups, "each class having its own suburb of residences." He charges that we are not encouraging families to participate in the creation of their own environment. Both planners and housers come in for criticism. They try to bar mixed communities and "encourage a dreary repetition of housing types." "What these specialists do," says he, "is to consult each other," but rarely do they pay any attention to the ideas or desires of people to be housed. He wants more research and experiments in social living "lest we drown up to our necks in a welter of refrigerators."

Composting Sewage Sludge—Two Views

WHILE the London, England, County Council has decided to abandon the production of compost from sewage sludge, a firm in Mount Wolf, Pa., is using it to make a salable commercial fertilizer.

The London experiments combined garbage and sewage sludge, according to a report in a recent issue of the British *Municipal Journal*. Tests conducted by the London County Council did not show that the addition of manurial value to household refuse, or the savings in the cost of sludge disposal, justified the process financially. Good results were obtained with the composts on farms formerly owned by the council, but the housing committee was informed that regular use of sludge compost containing a high percentage of inert solids on restricted areas would lead to an accumulation of inert material which might impair the soil fertility. At present sludge is barged to sea for disposal.

At Mount Wolf, however, Joseph W. Frazer, motor-car and farm-equipment manufacturer, has a pilot plant in operation that uses these same types of wastes. Mr. Frazer maintains his business office at 745 Fifth Ave., New York, N. Y.

The raw materials being used at present consist of canning-factory wastes, tobacco waste, and sewage-plant sludge. These materials are fed into a digester tank together with small amounts of special bacterial culture, limestone, and air. The bacterial decomposition is completed after about five days and a fine, black, odorless power emerges as the end product.

The process was developed by Eric Eweson, Swedish bio-chemist. Mr. Eweson explains that because the temperature is raised to 165° F. during the process, all disease-bearing organisms are eliminated. The ready compost contains about 2% nitrogen, 1 or 2% potasium and 1 or 2% phosphorous. The moisture content ranges between 15 and 25%.

A Good Way to Specify and Get Good Uniforms

ALL products that municipalities buy don't have to be tested, and laboratory tests are not all-conclusive, but there are numerous instances where small towns as well as the larger cities would save money and build satisfaction by using the facilities of commercial laboratories.

It is doubtful if one important value of such service has been widely explored by municipalities. This is the use of test results to establish specification. Take the case of uniforms. Every city in the nation has uniformed forces. How many cities pay much attention to either the fabric or the utilitarian engineering required to make a uniform look well tailored and give long hard service, in summer as well as winter?

Yet uniforms are as much municipal tools as are police cars, fire apparatus, and refuse trucks. They are not only of importance to the appearance of efficiency and authority, but of particular personal importance to the wearer. Usually he must buy his uniform, not because he felt like having a new suit, but because his superior has ordered him to do so.

Police chiefs are not to blame for this. If the chief were a specialist on fabrics he might not be too good at enforcement. The fact is, the manufacture of fabrics is beyond the present knowledge of police chiefs. Trucks, traffic signals, and radio equipment can be examined and questions asked. What questions can be asked of a uniform salesman about a fabric he recommends?

Over the country there is a wide divergence in price, police uniforms ranging from $125 to $50, according to a report rendered at the December, 1948, meeting of the National Association of State Purchasing Officials. Differences in quality and tailoring are not the whole explanation by any means. Absence of informed purchasing is the basic reason.

Here is one little spot where a commercial laboratory with an alert personnel can be of service to the municipality. In uniforms there are two factors: (1) measurable characteristics of the goods and (2) the styling or utilitarian engineering. The first requisite, therefore, is to understand how to ask for the goods wanted. Not much need be said, particularly if you've never said anything before; at most, width of fabric and weight per yard, number of threads each way, strength as represented by a breaking load, and color fastness. Request one-year samples. Manufacturers in a position to advise include, on worsteds and woolens, American Woolen Company, 225 Fourth Avenue; Metcalf Brothers & Company, 45 East 17th Street, and on cotton fabrics, Reeves Brothers Company, Inc., 54 Worth Street; all of New York.

The laboratory can help you set up this simple description of fabric. You select the sample you want made up and place your order. You don't have to check these samples by tests because you have told the manufacturers what you require. When the shipment is received you have a sample of it tested by the laboratory. On the basis of these test findings and those of your next order you can make revisions in your specifications, up here and down there, toward obtaining wider bidding and better prices.

When, among the samples received, you find two or three that you like almost equally well, have the $25 worth of tests run off on each; and where the results warrant, revise your specifications to let in the cheaper, though still good, fabric.

In this way you will gradually arrive at a set of specifications that will show the mills and the uniform manufacturers that yours is a city that knows what kind and quality of uniforms it wants and intends to have. There's morale-building in this procedure.

PHOTO COURTESY OF SMITH-GRAY CORP.

A convertible-collar overcoat for police work in cars or on the street in severe weather. The collar can be buttoned to protect the wearer's neck.

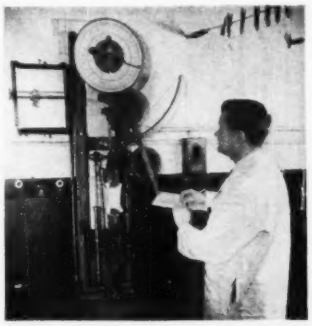


PHOTO COURTESY OF U. S. TESTING CO.

A Scott tester for measuring tensile strength of uniform fabrics. The test shows to what extent the material will wear and how it will keep its shape.

Specifications for Uniforms

Having determined the fabric you want, how shall the finished uniform be specified? The big cities have their specifications. Many smaller cities use those of the big cities. A number of other municipalities have developed their own written specifications. Apparently a great many of the remaining municipalities state their requirements by word of mouth to the uniform salesman.

The salesman usually has a specification pad covering requirements for (1) coat, overcoat, or jacket, (2) trousers or breeches, and (3) the cap. In the space after each line heading on the form he notes down what the chief tells him regarding style, whether Sam Browne belt, buttons, collar, pockets, cuff design, lining, etc.

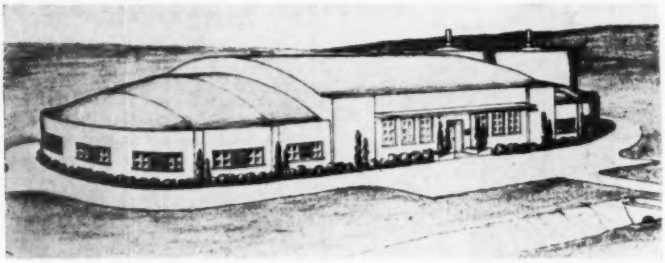
One way, and perhaps a good way, for a police department to develop written specifications would be to obtain from the salesman a form thus filled in. From it a good specification covering the department's uniform needs might be built up.

What's New

Police departments are in no hurry to change styles—maybe a rearrangement of buttons, pockets, chevrons—but, except for the vanished helmet, the policeman of today looks very much

(*Continued on page* 149)

Sewage-Treatment Plant to Be Odor-Free



The entire treatment plant will be covered to insure odor-free operation.

By DON HULL McCREERY
Quinton Engineers, Ltd.
Los Angeles, Calif.

At Oceanside, Calif., a bio-chemical plant with two-stage "Oxidators," all under cover, to provide operation without nuisance in residential area

RESIDENTIAL building close to the treatment plant at the terminus of the sewage-collection system in Oceanside, Calif., did not seem to be a probability when that system was laid out and first constructed. The unforeseen and unexpected has happened, however, and now several better-class residences are close to the treatment-plant site.

During the last decade Oceanside has grown considerably, both in population and in building. The old sewage-treatment plant has been overloaded for several years past, but the collection system is still not only adequate for present flows, but has capacity to serve the anticipated population for many years to come. A new treatment plant has been designed to replace the old one, but the collection system could not at this time be changed to provide a terminus in a more appropriate location. The site of the new plant is, therefore, in the midst of a residential area.

Odor Control Specified

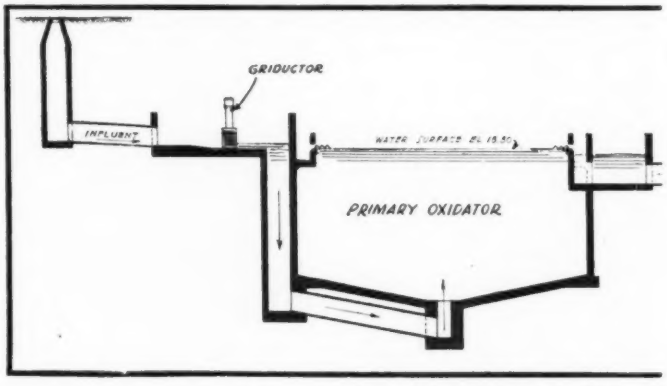
The city-owned property upon which the plant will be located is large enough to accommodate the new facility somewhat removed from the nearest residence, yet within reach of the existing sewer main by gravity. Because of the proximity of dwellings, the State Board of Public Health has made certain stringent controls a part of the conditions upon which the permit to operate is granted.

The most unusual of these is odor control. The requirement as stated by the permit is, "There shall be no noxious or offensive odors, gases or fumes of sewage. . . . in the air outside of the tract of land upon which said sewage-treatment plant and sewage-pumping stations are located, such that they may constitute a public nuisance." This requirement dictated that the entire plant be under cover, but that alone was not sufficient to assure compliance with the permit, so several features, not commonly used in sewage-plant design, have been incorporated to make certain that no "noxious or offensive odors" become a public nuisance.

Bio-Chemical Treatment

The new plant will be of the bio-chemical type, with capacity for a design population of 20,000. No allowance has been made for an industrial-waste load, as the city now has no industries and its future industrial development cannot be accurately anticipated at this time. In general, the plant units will consist of influent screening and shredding facilities, primary and secondary Oxidators, a chemical feeder, primary and secondary digesters, and equipment for dewatering digested sludge, chlorinating influent and effluent, and measuring effluent. Final disposal of the effluent will be through an existing submarine outfall line.

The primary Oxidator is a circular two-compartment open-top tank, the floor and exterior wall of which are constructed of reinforced concrete. The aeration compartment is the inner of the two concentric basins and is divided from the outer, or sedimentation, basin by a steel-plate wall. The equipment, manufactured by Process Engineers, Inc., is installed in the tank for the purpose of removing settleable solids and, in the case of the primary Oxidator, floating material as well. In this



Two oxidators form the backbone of

biochemical process the raw sewage enters the aeration compartment at the bottom in the center, and air is introduced adjacent to the supporting center column near the bottom of the aeration compartment. The raw sewage is subjected to agitation by air for a predetermined minimum length of time, and the resulting circulation keeps the sewage fresh, eliminates odors, and increases the removal of suspended matter and biochemical oxygen demand to a higher degree than is accomplished with conventional sedimentation units. After aeration, the sewage passes to the sedimentation compartment for the minimum detention period, during which time the settleable solids are collected on the bottom as sludge and the remainder passes over an outside weir to a collecting channel for passage to the secondary Oxidator. The Oxidator unit includes a scraper rotated from the central support to keep the bottom of the tank clean of sludge; sludge withdrawal is accomplished in the conventional manner. Design criteria for the primary tank provide a two-hour detention period in each of the two compartments—aeration and sedimentation—at the design population loading.

The raw sewage, as it enters the plant, normally passes through an Infilco Griductor screenings shredder to the primary Oxidator. For other than normal operations, when, for some reason, the shredder may not be operating, the sewage can be by-passed through a manually operated bar screen to the Oxidator inlet. The bar-screen channel is so constructed that when it becomes advisable to install a second screenings shredder the installation can be made with a minimum of reconstruction work.

The secondary Oxidator is identical in design and construction with the primary, and the detention periods are the same. Between the primary and the secondary, ferric chloride or ferric sulphate can be added to the sewage to assist flocculation in the secondary aeration compartment. In this compartment the partially treated sewage is again subjected to agitation by air for a minimum period, after which it passes to the sedimentation compartment; the final effluent flows through a Sparling propeller-type meter and then to the ocean outfall, while the sludge which settles out in this basin is pumped to the plant influent line for recovery in the primary tank.

Deodorant to Be Used

In general, the space over the equipment area is open to the underside of the roof. However, a portion of this space has been enclosed by airtight construction to act as a chemical contact chamber for the air in the plant before it is discharged to the outer atmosphere. An exhaust blower will provide a complete change of air in the building every fifteen minutes, and all of the air, before it is discharged, will pass through the contact chamber. For odor control, "Airkem" solution will be vaporized into the airstream entering the chamber and the volume of the chamber has been calculated to provide a detention period sufficient to allow thorough dispersal of the chemicals throughout the moving air before discharge through roof vents.

Sludge and Scum Pumped To Two Separate Digestors

The sludge and scum recovered from the primary Oxidator will be pumped to two separate digesters located outside the treatment-plant building. Digester structures will be of reinforced concrete with Pacific Flush Tank Company floating covers, and the design has provided a capacity of 60,000 cubic feet or 3 cubic feet per capita of design population. Space between the two digesters is closed in and roofed to provide housing for the digester-control and sludge-heating equipment.

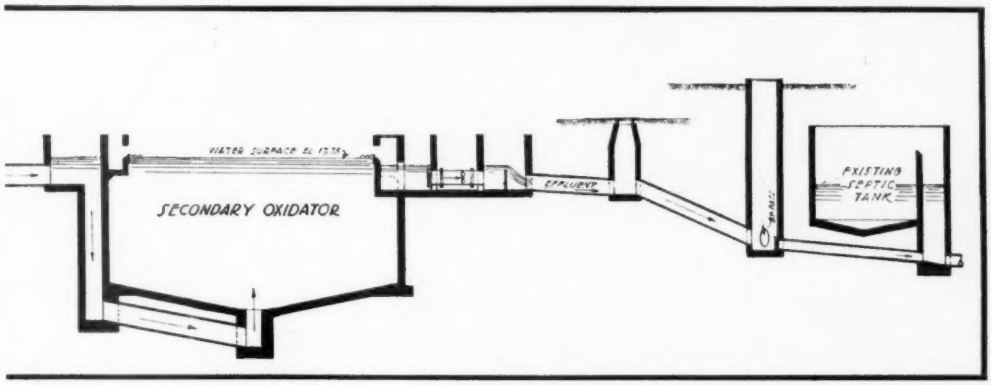
Digested sludge will be dewatered on an Oliver United vacuum filter housed in the treatment-plant building. After leaving the filter, the sludge will be taken outside of the building by belt conveyor for loading into trucks for transportation to ultimate disposal outside of the plant site.

Space within the treatment-plant building has been provided for one manually operated Wallace & Tiernan chlorinator and one Chemco chlorinator and chlorine storage. The raw sewage entering the plant will receive chlorination for odor control, and the final effluent as it leaves the plant will receive additional chlorination for disinfection.

Connection to Existing Tank To Be Maintained

The effluent line from the plant will connect to the existing 12-inch-diameter ocean-outfall line, but because this line is not large enough to carry the anticipated peak discharge from the plant at all times, a connection to the existing septic tank will be retained so that the tank can act as a balancing reservoir, or holding tank, when peak flows coincide with high tides. The outfall line, a wrought iron pipe, extends 2,300 feet seaward from mean tide line into water 33 feet below mean tide level.

Mr. Robert Weese, Superintendent of Water and Sewers for the City of Oceanside, is in charge of the project for the city. All of the design work has been executed, and the construction is being supervised, by Quinton Engineers, Ltd., with Harry Lonner in charge of sanitary design. The contractor on the work is Theodore Gregory of Pasadena, Calif., and Charles W. Clark is Resident Engineer.



the Oceanside sewage-treatment plant.

Needed:

More Municipal Golf Courses

By ROBERT BRUCE HARRIS
Golf Course Architect

GEORGE HJELTE, general manager of the Los Angeles Department of Recreation and Parks, in a very informative address before the annual convention of the National Greenkeeping Superintendents' Association, cited National Recreation Association figures showing that there were 14 fewer municipal golf courses in 1946 than reported in 1938. Mr. Hjelte pointed out that in view of the "imperative necessity" for cities to plan public facilities for recreation and the fact that municipal golf courses are frequently self-sustaining or profit-making services, the lag in public golf facilities indicated urgent need of attention.

Many city officials have become increasingly aware during the past two years of the wide range of use of public golf courses. Golf instruction at army and navy installations introduced millions of young men to the game; Industrial golf programs of offices and factories brought a multitude of others into golf. Now golf instruction is in a high and popular position in college and high-school athletic plans, as the "carry-over" game that can be enjoyed by both sexes and participants of widely varying degrees of athletic competence.

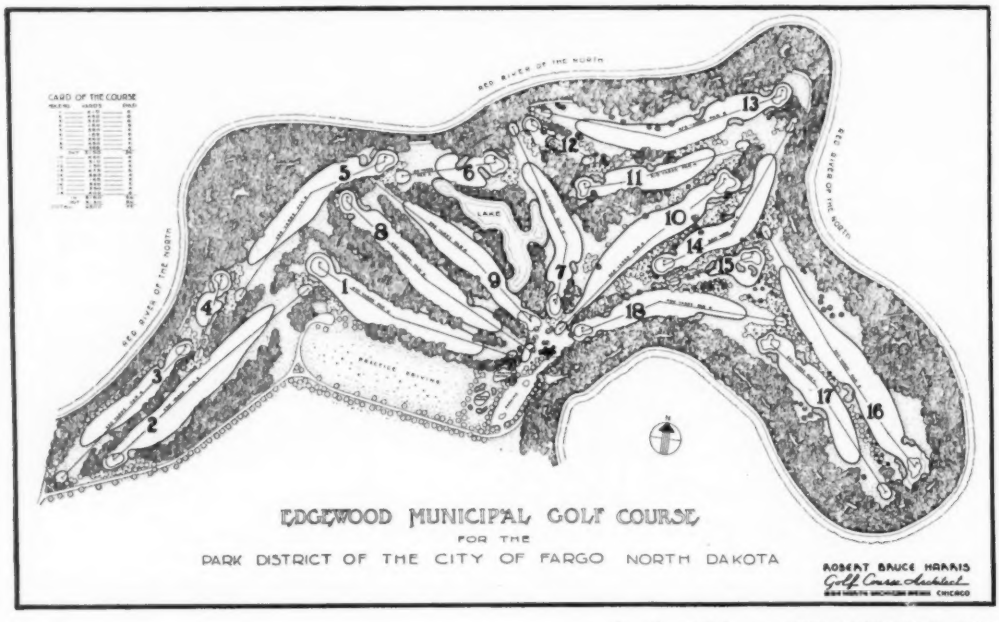
Planning of decentralization of industry also has helped put the spotlight on public golf, particularly in the smaller cities. Now the 711 municipal golf courses in the United States show a spotty spread, with only about half the communities with a population of 20,000 or more having public courses. In the metropolitan areas, almost without exception, public golf facilities are overcrowded.

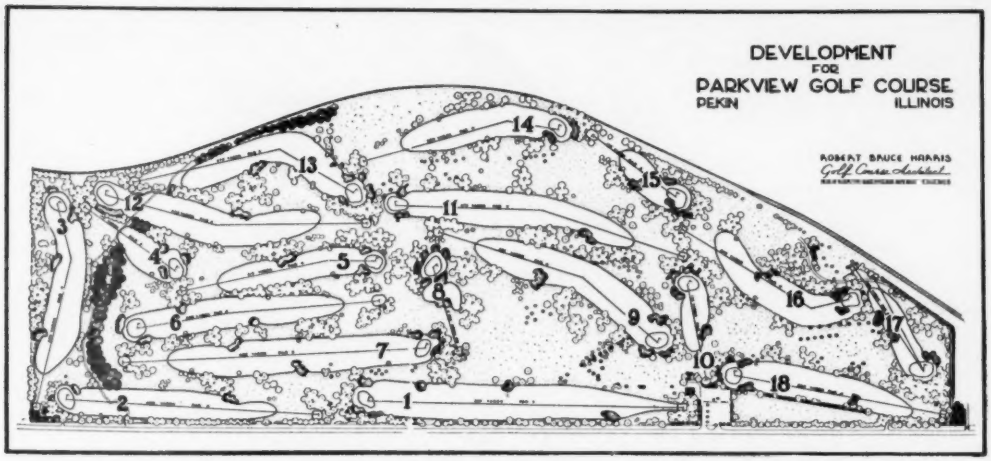
Although operating costs depend on variable elements such as the character of the course and the standard of maintenance and general operation desired, even if the net figures are in the red, the deficits are exceedingly small when considered on a pro rata basis of those who use the facilities. Considering the advertising value of the public course and its preservation of natural beauty, when there are operating deficits they probably are the least of the costs of community modernization.

Considerable cooperation in the establishment of public golf courses is being received by municipal authorities from Junior Chambers of Commerce. These alert and vigorous organizations, many of whose members returned from the war to find private golf-club memberships filled and too expensive, have become valued cooperators in promoting needed increases of public golf facilities.

New Public Course For Springfield

In Springfield, Ill., a new public course is to be built in the near future as the result of excellent team work between Mayor Harry Eielson, Commissioner of Public Property John Hunter, Superintendent of Playgrounds and Recreation Commissioner H. Francis Shuster, and the Springfield Junior





Chamber of Commerce, headed by President Douglas Brown and by Chairman Gary Phillips of the Jaycee's golf committee.

As in other cases of public-course construction, newspaper publicity on the addition of a highly desirable public recreation utility has been extensive and favorable. Financing of the Springfield course has been set to amortize construction costs of the plant in ten years.

The course design and construction at Springfield present a combination of factors essential to practical use of an area at present not much utilized. Heavy traffic can be accommodated without risk or inconvenience of crowding; provision is made for utmost use of machine maintenance to keep the course in excellent condition at low cost, and design is such that the course fits pleasantly into the play of the new or average golfer and at the same time provides a test of golf for city, regional, or even national championships.

Fargo Course Provides Practice Range

The Park District of Fargo, N. D., has wisely employed a big bend in the Red River of the North as the site of its Edgewood municipal golf course. This is a recreation plant of the type that public golfers are insisting on these days. An interesting feature is a large practice range which can be night-lighted eventually if conditions warrant. Practice ranges have been receiving increasingly heavy patronage during the last two years. Though this is a field primarily for the private operator, rather than the municipality, there are instances in which the practice range for night as well as day use would be a most welcome addition to public recreation facilities at the courses.

The Fargo Edgewood course is being rebuilt with a change from sand to grass greens and a comprehensive alteration and modernization of design to make the establishment one of the finest in its section of the nation. Considerable advance in turf culture during the last decade has made it possible to bring many of the smaller-city public courses up to a standard of playing conditions closely approximating that of the better private clubs. Park-golf-course operating officials have done a great deal of notable work in developing turf to withstand the hard use of public golf.

How the demand for public golf is growing in smaller as well as larger cities is evident at Pekin, Ill., and Louisville, Ky. Pekin is developing its original layout into an excellent 18-hole course with well-balanced holes to give its golfers experience with every type of shot they'd have to play on the magnificent private-club championship courses of the nation. The golfer in the smaller towns and cities travels a great deal now. He alternates between being guest and host. He wants to have pride in his own community's golfing facilities and as a matter of fact often can point to public courses that are superior in design, construction, and maintenance to many of the private courses that were built a couple of decades ago.

In Pekin the enlargement of the Parkview course from 9 to 18 holes is being done under the administration of Park Commissioners Charles W. Grossweiler, Sr., Charles I. Kelly, William G. Knieriem, Tim G. Soldwedel, and Orvel W. Wubben, who, by this enlargement, recognize the prominent place public golf now holds in the recreation plan, and judge that the game's popularity will most certainly continue.

Louisville has long been alert to the increasing activity in public golf, and is supplying splendid facilities. T. Byrne Morgan, Director of Parks and Recreation, and Leo F. Goss, Superintendent of Parks, recently have finished Iroquois Park course as a first-class example of compact, yet safe, golf on 9 holes to supply a demand of an area that is "golf hot." In 1950, Louisville will be host to the United States Golf Association's national public links championship.

El Paso Approves New Planning Department

THE creation of a Department of Planning in El Paso, Texas, was recently announced by Mayor Dan L. P. Duke. The new department was approved unanimously by an economy-minded council. The move is designed to insure better consideration of municipal problems by separating the planning and engineering functions.

City Plan Engineer Walter E. Stockwell will supervise planning activities as he has done since 1923. It was then that he was appointed Secretary-Engineer to El Paso's First City Plan Commission. Assisting Mr. Stockwell as Associate Planner will be V. L. Mike Mahoney, who joined the El Paso staff last September as Assistant City Plan Engineer. Formerly Mr. Mahoney was planning technician in Tucson, Arizona. A recent addition to the staff is William S. Bonner as Senior Planning Analyst. Mr. Bonner, 1948 graduate of the planning school of the University of North Carolina, was previously employed as Research Assistant at the Institute of Community Development, University of Oklahoma.

Toledo Tangles with King Winter

The big blower goes into action on a snowdrift covering the Toledo Municipal Airport.

Adequate snow-fighting equipment for Toledo streets and airport is made available by revenues from city income tax

By RUSSELL BREMER
Secretary
Commission of Publicity and Efficiency
Toledo, Ohio

CHEMICALS, diesel motors, street graders, and trucks have been welded into a combination force for keeping Toledo's streets and airport runways free of snow and ice. Largely the purchase of equipment for this purpose has been made possible through the enactment, a few years ago, of the Toledo income tax which provides for the expenditure of $250,000 a year for new equipment and $550,000 a year for capital improvements, including long-lived heavy-duty machinery.

Rotary Plows Used

The most important recent addition of equipment for this program of snow removal has been a new rotary snowplow powered with a diesel motor for use on downtown city streets and the airport runways.

Clayton L. Piper, Aviation Commissioner in charge of the airport outside of the city, first used a rotary plow at the airport a year ago, borrowing the equipment from the United States Army.

This year John W. Klag, Commissioner of Streets, put into service a newly purchased rotary plow. Porter W. McDonnell, Service Director, in shaping a program of snow removal for the streets and the airport, proposed that the equipment should be interchangeable between the two services—street division and airport—for removal of snow and ice from the airport runways and the streets.

Accordingly, three one-way snowplows, attached to trucks on permanently built-in framework, were purchased. They are Baker Model 358 reversible trip blade plows, manufactured by the Baker Manufacturing Company of Springfield, Ill. Each cost $360. The steel frame supporting the plow is welded to the frame of the truck under the bed and fastened to the framework at the front of the truck. The plow, when not in use, rests upon the ground in position for quick assembly on the trucks. Two men can assemble the equipment in less than five minutes. All of this equipment is kept within the city. Street-department trucks are used to haul the snow away from downtown areas. The service is geared to fast operation for clearing streets before traffic interferes with the operation.

Fixtures permanently attached to the trucks make plow installations easy.

Where Each Type Is Used

The truck-borne plows are used for fast operation in outlying districts, while generally the rotary plow is to be used for the downtown area and the airport.

The rotary plow, 12 feet wide, powered by a diesel motor, is manufactured by Bros Brothers and is known as the Snow Flyer, Model 37. This equipment, bought as war surplus, cost the city $16,370. In using this plow at the airport, the snow is blown to the side of the runways by the use of the snow chute fitted to the top of the rotary

equipment. This chute is adjustable so that if it is used on city streets the snow can be deflected to trucks moved with the rotary plow.

At the airport there is also maintained a Galion heavy-duty diesel road grader with a 14-foot blade. This equipment was bought in 1940 for use on city streets and now is used for earth grading at the airport as well as for snow removal. Scarifiers, at the fore-end of the grader, are used to plow up ice where snow has become wet and frozen. While not used extensively in snow removal, it has been found to be a useful piece of equipment for some snow-removal conditions. The grader is manufactured by the Galion Iron Works, Galion, Ohio; it cost $5,635 and has two engines, including a gasoline motor for starting the diesel.

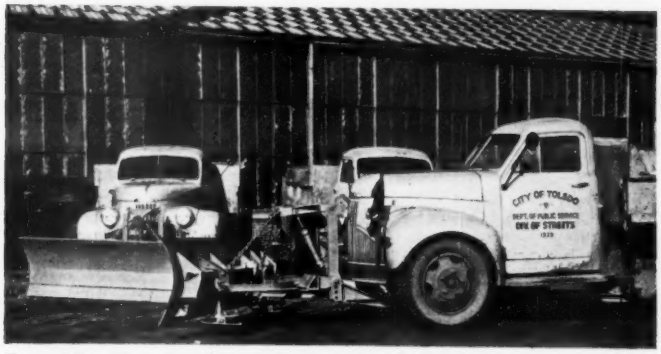
For walks, aprons, and pavements about the administration building, the small Jeep-equipped grader, or pusher-type plow, is used. This equipment has proved so satisfactory for fast work that the purchase of a new Jeep is contemplated to take the place of the one that has been in use for the last several years.

Supplementing the use of the motorized equipment on the streets, extensive use of calcium chloride is relied upon to overcome ice hazards at intersections and on grades. Most recent purchases have been about 400 tons a year. Sometimes cinders are applied with the chloride.

Snow and ice removal from streets is financed by assessments against property in the city. The Toledo airport operates as a utility and bears its snow-removal costs from its own revenues. Arnold V. Finch is City Manager.

The Jeep takes care of the sidewalks.

The Bros blower clears the airport runways.



For quick work on certain streets, these Studebaker trucks take charge with their adjustable plows, which are hydraulically controlled from within the cab.

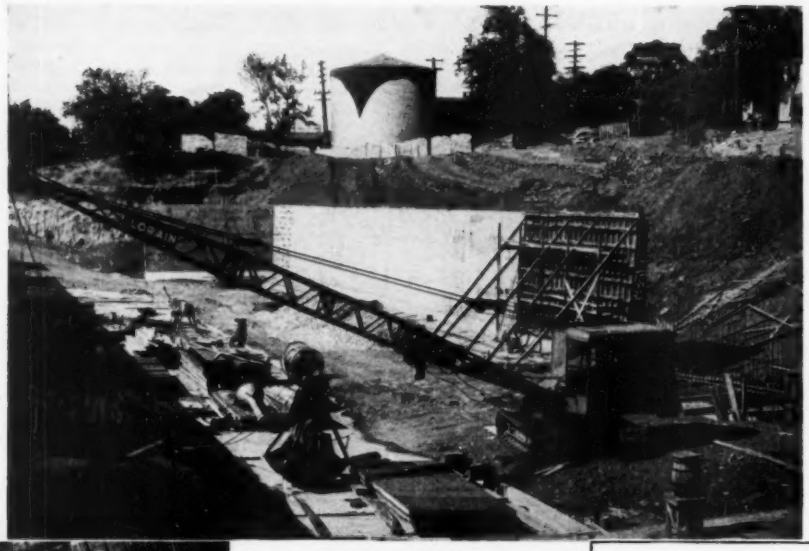
Uniform Municipal Accounting

MARYLAND is the latest state to require all local governments to set up a uniform accounting system, the Municipal Finance Officers Association reports. Under the provisions of a recently adopted law, all counties and incorporated towns in the state must comply with accounting procedures set forth by the state's commission on uniform accounts. Previously each local unit of government had its own accounting system.

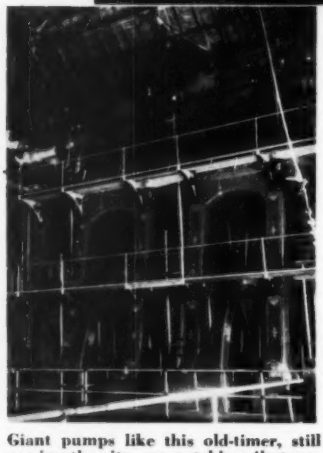
Thirty-five of the 48 states have some kind of law concerned with control of local-government finance. At least 16 states now require all local jurisdictions to maintain uniform systems of accounting. Ohio first put such a system in effect in 1905.

New Jersey's local finance-control law, revised in 1938, set up a state department of local government charged with prescribing and administering uniform accounting systems. Municipalities having assessed property valuation in excess of $3,000,000 are required to have annual audits made, while those with lower valuations must audit at least once every two years.

Alabama, Arizona, Florida, Kentucky, Louisiana, Michigan and Mississippi have laws requiring all counties to adopt uniform accounting systems. Minnesota's reorganization act of 1939 provided that the public examiner "shall prescribe suitable systems of accounts for all local units of government." In Wisconsin, local governments have an option as to what system of accounting they will adopt. Massachusetts cities vote on whether they want to install the uniform system of accounting or not.

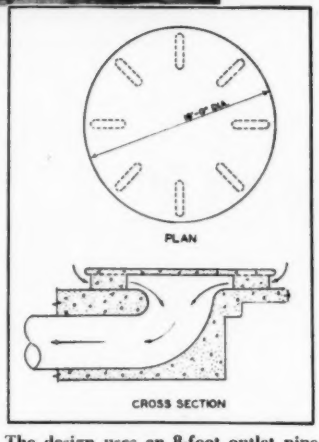


The new flocculation and settling basin constitutes an important portion of Fort Worth's improvement program.



Giant pumps like this old-timer, still serving the city, are notable milestones in the long history of water works.

Fort Worth's Ten-Year Water-Works Program



The design uses an 8-foot outlet pipe covered by a 16-foot plate to insure low velocities and no short circuiting.

A decade ahead is far enough to plan safely in this growing Texas city, so officials stake out a program to be completed in 1960

IF ANYONE in Fort Worth proposes a water-works program that will be adequate to meet the city's needs for the next 20 to 40 years, City Manager W. O. Jones and Water Director Uel Stephens may listen patiently, but they are not apt to listen with any degree of favor. Forty-year plans have hard sledding in this city. When a metropolitan area grows as fast as Fort Worth does, long-range targets are hard to establish accurately.

As a result, the water-works program has been set to a shorter range and seems to be in a continuous state of expansion. It has been that way ever since 1882, when Captain B. B. Paddock organized the first water-works company and set out to supply 4,000,000 gallons of water per day to the city. Today the city has almost forgotten the artesian wells that Captain Paddock used. It has three lakes supplying 620,660 acre feet of water per year, with a fourth to be completed in the next few years that will add 89,000 acre feet. It has a filter plant that has been enlarged three times, so that today it has a top capacity of 64 mgd. And it has a program of filter-plant expansion that will give a top capacity of 100 mgd, or enough to care for Fort Worth's needs until the population reaches 400,000. If present growth curves give any indication at all, this probably will be in 1960.

Second Plant Possible

The Mist Fork of the Trinity River provides the principal source of water supply for the city, and it will continue to do so for the next 10 years and probably longer. If unusual growth of the city continues, the Water Department may draw from the Clear Fork

tributary stream, which flows into Lake Benbrook. Under those conditions, a new water-treatment plant will be established that will serve a separate section of the city. Studies show that the water in the Clear Fork stream is somewhat softer than water currently used.

In the next 10-year period, the average daily water use per meter will probably be 600 gallons with a peak use of 1,000 gallons. With 100,000 meters in use, the demand would total 21,900 mg per year. The combined storage of the four lakes is 202,769 mg, giving Fort Worth an ample supply of water to serve a community of 400,000 through a five-year period without rainfall and allowing 50% loss by evaporation and seepage. The magnitude of the supply, therefore, is not a vital problem as long as present water rights are maintained.

Conduit System Enlargement

To bring the water to the city from the lakes, the Water Department uses a set of large conduits. One, varying from 36 inches to 48 inches in diameter, was built in 1914 and can deliver 20 mgd by gravity. A second, measuring 60 inches, was completed in 1928, and was designed to deliver 50 mgd. In the summer of 1948, however, when water use was high, plant operators were able to push 64 mgd through the system of conduits by discontinuing the aeration treatment and thereby reducing the head loss by 18 feet.

Since this summer has produced demands of 62 mgd and the city in 1960 will probably require 100 mgd, the conduit system must be increased by one additional line supplying at least 50 mgd.

Department officials estimate that the present 60-inch conduit is losing by leaks between 4 and 8 mg daily. By repairing the leaks and building the new line, the city would then have a conduit capacity of 120 mgd, or comfortably in excess of the 100 mgd requirement.

It is planned to construct the new conduit of precast concrete pipe in sections of 16- to 20-foot lengths, using a bell-and-spigot type of design developed by water-department engineers. The new line will have its own intake, interconnected to the existing 60-inch and 48-inch lines. As a safety precaution, the city plans to locate the new conduit at some distance from the present set of conduits.

The water, when it reaches the filter plant, receives a simple treatment of aeration, chemical dosing using lime and alum, filtration, and chlorination. The filters were last enlarged in 1931, giving a rated capacity of 35 mgd. Operators can boost this to 48 mgd for short periods if needed. In 1944 the

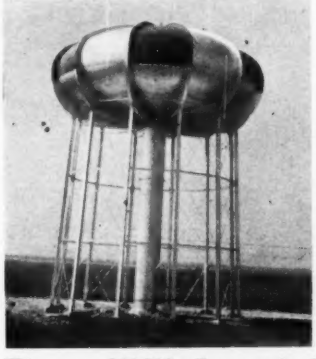
Water Director Uel Stephens, left, points out new construction highlights to City Manager W. O. Jones.

unusual growth of the city began making difficult demands on the filter plant and prompted engineering studies of possible enlargements.

The first stage of plant enlargement consisted of three elements: 20-mgd chemical mixing facilities; two additional sedimentation basins providing an added 20-mgd capacity; and a 12-mgd filter-plant extension. Together, their cost was estimated at $1,246,000.

At present approximately 15 mgd of the water delivered to the plant is passed through a hydraulic mixing chamber with baffles providing the mixing. And another 20 mgd passes through mechanical flash mixers. Construction of the new flash-mixing facilities, using Link Belt equipment, is now completed and in service.

The plant has no flocculation facilities as such. Director Stephens plans



This new 100,000-gallon overhead tank was completed last June. Erected by the Pittsburgh-Des Moines Steel Co., it uses the exposed rib design.

to try installing some in the existing sedimentation basins. With them he hopes to boost the capacity of the mixing and sedimentation facilities so that it will compare with the 100-mgd capacity in the rest of the plant. If he is not successful, he expects to build more chemical-treatment facilities.

The chemical-mixing and filter extensions are duplicates of existing facilities and are actually extensions of existing structures. The chemical-mixing extension is of the mechanical-feed and agitated type, using Omega lime and alum dry-feed machines. The filters are of the rapid sand type, designed to have normal capacity of 2 gallons per square foot per minute, divided into six units of 2 mgd each. Leopold vitrified clay strainer tile bottoms support the filter media. The filter will have an 8-inch layer of gravel varying in size from ¼ to 1 inch. The filter sand will be 27 inches deep and will have an effective size of 0.40 to 0.50 mm and a uniformity coefficient of 1.50 to 1.70 mm. The filters will use Builders Foundry Company operation-control apparatus. When the extension is completed, the unit will have a capacity of 32 mgd and the operating room will be 275 feet long, making it probably the largest single filter building in the Southwest. Plans are being completed for a second 32-mgd filter building which will duplicate the one now being completed. This will make the total capacity 79 mgd, capable of being overloaded to 100 mgd.

Until the second 32-mgd filter building is constructed, possibly in 1952, the presently installed chlorinating equipment will continue to serve and chlorine will be introduced into the filtered water at a point near the junction of the two filter buildings. When the final stage of filter-plant enlargement is planned, provisions will then be made for a modern car-unloading building to house the chlorinating equipment. Chlorination is provided for water sterilization only. It is not necessary to use it for work in taste and odor control.

Underground Storage

Since the clear-well capacity also had become inadequate, the Water Department explored the necessity of building an added underground-storage reservoir of 6-mg capacity. This new covered reservoir will have a depth of 19 feet, a length of 320 feet, and a width of 180 feet. The reservoir will have a specially designed outlet, covered with a baffle slab 16 feet in diameter to draw the water away without disturbing eddies.

The three new sedimentation basins provide a straight flow through the basins rather than an "around-the-end" flow used in the four older basins. They

measure 18½ feet deep, 310 feet long, and 75 feet wide. They provide a detention time of 6.95 hours and a velocity of 0.73 feet per minute at the rated capacity of 10 mgd for each of the three units. In one of these will be installed the flocculation equipment that the city hopes will boost the plant capacity.

When the water leaves the filter plant, it is transferred by a set of five pumping stations. The largest is at the plant site. The other four actually constitute booster stations. When the present program is completed, the pumping facilities will be as follows:

		Elevated Storage	Elevation
Holly Plant (main)	110 mgd	9.83 mg	760 ft.
South Side	29 "	2.50 "	850 "
West Side	21 "	1.50 "	857 "
North Side	19½ "	1.00 "	850 "
East Side	22 "	1.50 "	805 "

With proper size of distribution mains and elevated storage, all pump stations are planned to have sufficient capacity to serve until sometime after 1960 without being increased.

Elevated Storage

All the elevated storage has been provided except two tanks, of 1-mg capacity each, and their construction is planned for 1950. Each new elevated steel tank will be painted with three coats of paint, using aluminum for the two final outside coats. Cathodic-protection devices may be installed.

Paying for all this is, of course, as necessary a consideration as the construction itself. The Water Department depends on its metered accounts for its income. Revenue must be used for maintenance, operation, and debt service first, and any remaining may be spent for capital improvements. Both the water and the sewer departments receive revenue based on metered charges. The sewer service charges, however, are not high enough to make the service self-supporting. This annual deficit has been made up from the water revenue. After thorough rate studies, the city has established a new water rate that will mean an increase of about 22% and a new sewer-service charge of slightly more than 46%. The increase in sewer-service charges is still not large enough to meet its costs, but it is about as high as the public will accept at this period. The increased income will pay for a $12,400,000 revenue-bond issue voted to meet the cost of this work. These bonds will be retired within a 20-year period.

With this program carried to completion, City Manager Jones and Water Director Stephens have every reason to expect that by 1953 they will have a municipal water system ample to meet all reasonable requirements and second to none in the Southwest.

The Judge's Job in a City Court

Paragraphs from "Oath of Devotion,"* by Julius Isaacs

CALOMEL and bloodletting were once the standard medical remedies for almost every ailment. The bloodletting stage in crime treatment has been relegated to the limbo of history, for this people's judge, the magistrate, socially aware, knows that jail is not the cure for those who are mentally ill; that good health is not sufficient to cure crime but that it helps; that good housing is not enough, but that that helps. He knows that employment is health-giving but not completely sufficient, for if prosperity were a cure, a penthouse would be an insurance against criminal conduct. He knows that since no two men are alike, no two crimes can be alike; that criminals cannot be divided into neat categories but must be dealt with as human beings; not as isolated concepts but as a part of society. He knows that the cause of crime is not specific but multiple, that "punishment" must be made to fit the criminal more than the crime, that in treating the delinquent you cannot do something *for* youth, but *with* him, by his own participation and the participation of the entire community.

* * *

I do not see the judicial job as merely to punish or to exonerate. The determination of guilt or innocence, from a purely legal point of view, is comparatively easy but in the long run that may be essentially unimportant. We know that guilt or innocence are sometimes matters of accident, that people are guilty because they are human.

Until society has caught hold of this frail and fallible man, nudged him into line in the pattern of social thinking and social living, and removed the fear of unemployment, we cannot say that we have performed our task very well.

* * *

We take for granted a certain amount of legal ability in a magistrate; the more law the judge knows the better. Especially is it true in this court, because here he is on his own; here no juries share the responsibility with him. Often it is stupidly said that "All a magistrate needs is some common sense." What a banal cliché. What the magistrate needs and often possesses is uncommon sense, uncommon because it is a sense that is particularly indigenous to the special job.

Moral integrity, too, is a prime necessity. That he should be incorruptible and free from political and other extraneous influences should go without saying. Such moral independence is more than a virtue. Having essential honesty and legal acumen, the magistrate, particularly among the judges, must care a lot about people. . . .

Steady, courageous judgment goes far in achieving success on that bench; after patient listening, the decisions must be quick. Above all else the magistrate must be modest and humble. This will give him an inward dignity and not a hollow distinction that is buttressed with the trappings of robe and position.

And finally, in this court, the magistrate must be a firm administrator. The cases are numerous, people are emotional and unrestrained. While firm in his handling he must give an assurance, to losing as well as successful litigant, of calm and measured judgment. With the police he must leave the impression that their work is important and appreciated. When a case has to be thrown out, there is rarely if ever any need for castigating the police officer. The police job is to make an arrest or issue a summons when there is probable cause for believing that a crime or an infraction has been committed. If an acquittal results the police must not by unrestrained criticism be induced to become sloppy and listless in their protective efforts.

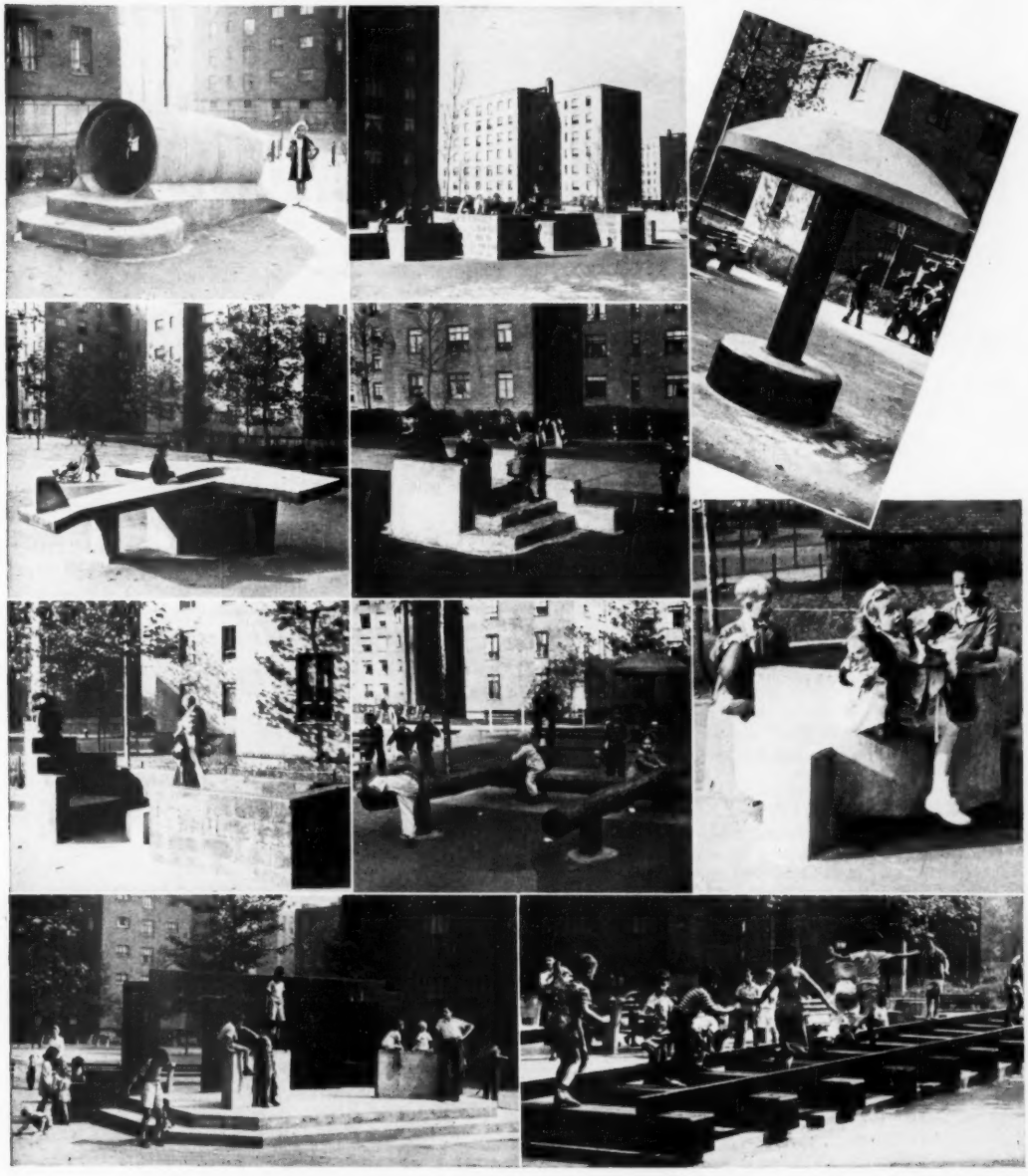
The awareness that criminal prophylaxis must be many-sided, that it must include good health, satisfying work, sound education for trade and leisure, attractive homes and congenial neighborhoods, is a keystone of the judge's equipment. For this is the people's court. In more ancient and simpler civilizations worries were deposited at the doorstep of the doctor and the minister. But now this is where the people take their troubles. Until a better place is found, the magistrate must be equipped with sufficient social foresight to handle the thousands of situations that trouble us all in our complicated modern life.

* See page 163 of this issue.

Playgrounds at New York Housing Projects *Encourage Use of Imagination*

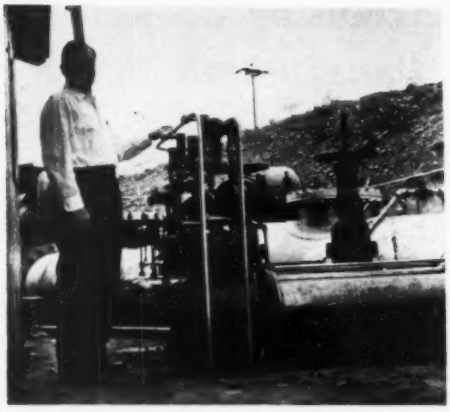
Pictures made available by

JAMES WILLIAM GAYNOR, *Director of Management, New York City Housing Authority*



REPRODUCED BY COURTESY OF "THE JOURNAL OF HOUSING"

An American counterpart of the Danish *skrammellegeplad* playgrounds, which were originally featured in the December 1948 issue of *The American City*, is shown in these photos of play equipment installed in New York City Housing Authority projects. The July issue of *The Journal of Housing*, published at 1313 E. 60th St., Chicago, Ill., contains interesting commentary by various housing-project managers about such new types of play equipment.



City Engineer Gail Baker examining new pumping station that boosts the capacity of the main supply line.

New 30-mgd filter plant is designed to meet the peak summer demands beyond the capacity of wells and infiltration gallery

New Filter Plant at Phoenix Works Part-Time

WATER supply is serious business in Phoenix, Ariz., where the people don't like to see their use of water restricted. The demand for water rises like the rugged skyline itself. No sooner do you ascend one peak than you find another challenging you.

The city, in its search for water, has used almost every type of water-supply device in the books. The facilities originally consisted of infiltration galleries fed by the Verde River—valuable because they tap the evaporation-proof underground reservoirs. Later, well fields were developed in the same area, in sections where the galleries wouldn't be practical. And now today, the city has completed a new filter plant that draws water directly out of the river, treats it, and delivers it to the city, filling peak demand periods that the wells and galleries cannot supply.

400 Gallons per Capita

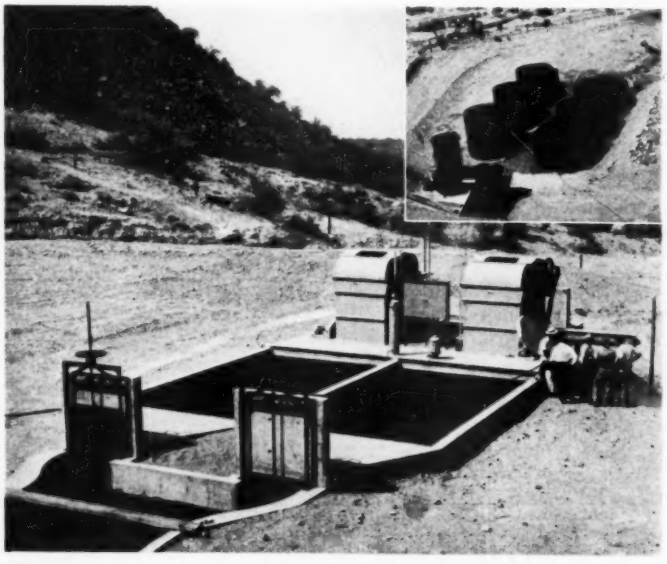
The amount of water required is awe-inspiring when matched against the use of water in other parts of the country. On a peak day last summer the city used 57,000,000 gallons. For a city of 130,000 this means more than 400 gallons per capita on a system that is substantially all metered. But Phoenix makes no restrictions on the use of water for air conditioning. And in this dry climate, the most popular air-conditioning unit uses a large fan blowing through a constantly moistened coarse filter. The evaporating action cools the air markedly. The unit also increases the humidity slightly but not enough to be noticeable. Private dwellings as well as business houses use them. It is doubtful whether the city would be able to prevent their use as long as water to operate them remains available.

However, City Manager J. T. Deppe is not particularly interested in making any changes. The sale of water, he reasons, is a business conducted by the city. As long as his rates are right, this business should be self-supporting and show a profit. If the people want to use the water, he intends to see that they have the opportunity.

The new water-treatment plant supplies 30 mgd to the total of 60 mgd that constitutes the city's firm plant capacity. Inasmuch as the treatment-plant water is more expensive to produce than water supplied from the Verde galleries or wells, the plant is run only during the hot summer months, when the yield from the other two supplies is not adequate.

The plant is one of the first to use ferric sulphate made on the plant site. This is one of the developments of the aut-oxidation process originated by Harmon Keyes, Phoenix chemical engineer. The process has been used in the city's sewage-treatment plant for several years.

The aut-oxidation process burns raw



When the water enters the plant, it first passes through this pair of grit chambers. The aut-oxidation process, which produced low-cost iron salts for water coagulation, takes place in the tanks shown in the inset.

sulphur to produce sulphur dioxide. This is then combined with ferrous sulphate and air to produce ferric sulphate used for water coagulation. A portion of the ferric sulphate is circulated over old scrap iron to produce ferrous sulphate, which is then returned to the sulphur dioxide-air reactors to produce the ferric sulphate.

The plant draws water from the river through three Aurora pumps, each capable of handling 10 mgd, drawing against a 20-foot suction, and pumping against a 60-foot head. The water goes through a 36-inch pipeline for about a mile to the filter plant.

Before entering the plant, the water passes through two parallel Jeffrey bucket-type grit removal chambers. It then proceeds through a large Parshall flume and enters the chemical-application building.

Chemical Dosing

The chemical-application building is designed to feed alum, lime and activated carbon, chlorine, and liquid ferric sulphate. Because of the cheapness of scrap iron and sulphur in the area, liquid ferric sulphate commands a favorable price balance. The dry chemicals are applied by a set of Omega feeders. Prechlorination and post-chlorination facilities are provided.

When the water has received its chemical dosage, it proceeds to two flash mixing basins with Jeffrey stirring equipment. These basins each measure 10 by 10 by 6 feet, and each is designed for a 30-mgd flow. The water then passes into a set of three coagulation basins, each measuring 61 by 77 feet with a 9½-foot water depth. Detention time in these basins is 0.8 hour. From there the water proceeds to three sedimentation basins, each measuring 77 by 220 feet, with a 10-foot water depth. Detention is three hours.

When necessary, the water is recarbonated before it goes to the filters. During the present operation this has not been required. The water goes from the sedimentation basins to the filters. There are eight of these filters, each rated at 4 mgd. All are equipped with Simplex pneumatic controls and Leopold underdrains. The filters use 6 inches of gravel and 27 inches of sand, all graded and shipped by the Monterey Sand Co. Palmer surface washes help keep the filters clean.

A 200,000-gallon elevated wash-water tank is used by the filters. This tank, fabricated by the Allison Steel Co., Phoenix, uses Dearborn Chemical Co. "A Special" coating for protection against corrosion.

The plant has a pair of Wallace and Tiernan chlorinators to supply chlorine solution. It also has Jeffrey chemical-handling equipment in the chemical building. The building has four 90-ton storage bins.

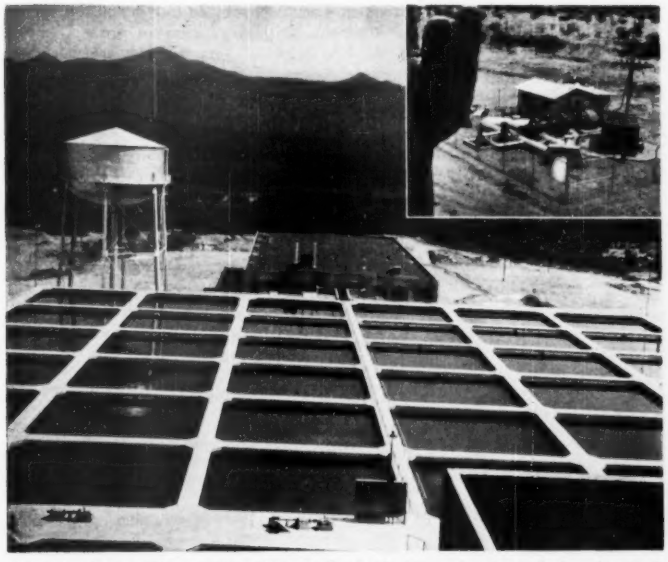
Treating and collecting the water is only part of the story of the Phoenix water supply. Equally important is transporting it to the city for distribution. At present the city relies on a 48-inch gravity line, but as the demand for water increased, the need for a second line became apparent. This is now in the process of being laid and is 60 inches in diameter.

New Pumping Station

In the meantime, to increase the capacity of the gravity line, the city has installed a booster pumping station. The station uses two Byron Jackson pumps ranging in capacity from 23,000 to 29,000 to 32,000 gpm. The two pumps are operated by two motors in tandem. One motor is two-speed, requiring 300 and 500 hp. The other is a 1,000-hp motor. The station has a pair of S. Morgan Smith Rotovalves, 12 and 24 inches, that will automatically bypass the water in case of a power failure. It has another set of Rotovalves and a return line in case the station overpumps the capacity of the line. There are three surge pressure-relief valves in the station.

The station will be used only during the months that have high water demand and will be closed down entirely when the second line is complete. Both lines will discharge into a 25-mg covered storage reservoir.

The new filter plant was designed and its construction supervised by Headman, Ferguson and Carrollo, Phoenix consulting engineers. The new transmission main and the booster pumping station were designed by Yost and Gardner, also of Phoenix. The plant is operated under the direction of Dario Travaini, Superintendent of Water and Sewerage. It forms a part of the general administrative duties of City Manager Deppe.



How the flocculation and settling tanks look from the top of the chemical building. Beyond is the filter building; the wash-water tank is on the left. The inset shows the pumping station in its rugged desert surroundings.

Soil Erosion Adds To Stream Pollution

CITIES and their industries are far from being the only offenders in stream-pollution problems. Equally bad, and in many cases often much worse, is the erosion of soil from farmlands. Harold A. Kemp, Director of Sanitary Engineering for the District of Columbia, pointed this out at a meeting of the Interstate Commission on the Potomac River Basin recently. He produced statistics to show that the mud load of the Potomac River at Washington was some 1,600,000 tons last year, which is equivalent to a 6-inch layer of topsoil from two square miles.

The soil wastes are much more dangerous to aquatic life than organic wastes, he pointed out. Furthermore turbid water makes fish more susceptible to the effects of organic pollution. Soil-conservation measures could reduce the turbidity in the Potomac by more than 75% and save Washington more than $50,000 per year in treatment costs.

Portland's Visitors' Information Center Increases City's Income from Tourists

Portland's Visitors' Information Center is modernistic, cleverly designed to create a mood of relaxation. The parking area at right is for visitors. There is additional parking space that is not shown here. Since this photo was taken, landscaping has been completed, adding much to the charm of the center.

By PAUL H. GILLEM

SOMEWHAT to its surprise, the city of Portland, Ore., has found that, through an original investment of less than $80,000 for a tourist center, it has been able to increase its annual tourist income by an estimated $500,000.

In 1945, members of the Chamber of Commerce came up with the idea of a Visitors Information Center, a place where tourists could be supplied with information about the city and the state in general—and at the same time be discreetly sold on the idea of biding a bit longer than their schedules called for.

The chamber members realized they would need a place strategically located in an accessible spot—preferably outside the downtown business district, where plenty of parking facilities would be available. It was their thought to make the Center so architecturally striking, and the service so complete, that the visitor would carry away with him an impression of up-and-coming hospitality.

How well they succeeded can be judged by a close inspection of the Center itself. Opened in July of 1948, and situated on city-and state-owned land beside the banks of the Willamette river, on what will soon be Highway 99W, the modernistic structure offers the visitor an opportunity to pause and rest from his travels on comfortable seating facilities distributed throughout a softly lit interior. Opening directly from the lobby, a patio pool is surrounded by green lawns on which additional benches are set up so that they look out over the river.

While an atmosphere of leisure is carefully preserved throughout his visit, the tourist, nevertheless, is quietly sounded out for information regarding his plans. The route by which he en-

Attractive hostesses greet the tourist at the information desk in the main lobby. Attention is given to each guest in a leisurely and friendly atmosphere.

Photo murals of the state's scenic attractions decorate walls and provide the talking point for hostesses who conduct visitors through the Information Center.

tered the city, the probable duration of his stay, and his itinerary after leaving the city are discreetly obtained by trained hostesses. With this information at hand, a painless and effective selling campaign is begun to induce him to stay longer. Points of interest throughout the urban and suburban areas are outlined, and the hostesses personally conduct the guest on a tour of the building. They pause from time to time before the huge photographs that line the walls of one of the rooms to deliver a short, informative talk on the outstanding features of the state. And if he wishes, the tourist may see a colored motion picture of the state, furnished by the highway department.

That the service is successful is demonstrated by the results of a survey conducted to determine the Center's effectiveness in 1948. Tabulations of completed questionnaires returned indicated that the average tourist's stay in Oregon was lengthened 3.28 days as a result of information and assistance received at the Center. Average number of persons per visiting party was 2.7, of whom 51% stated that their stay in Portland had been increased as a result of a visit to the Center.

According to V. A. McNeil, Center manager, the idea of shelling out $80,000 for a tourist shrine wasn't too easy to promote at first. As it turned out, however, the actual cost of construction was considerably less than the original estimate. The contractor's services and most of the building materials were donated.

The cost of maintaining the Center and the chamber's visitors' service department is between $35,000 and $40,000 a year, most of which is covered in the chamber's yearly budget, though some funds are obtained from other sources.

At the present time an aggressive campaign is under way to acquaint the citizens of the state with the Center and to inform them of the type of job that is being done for them. Open from 9 a.m. to 9 p.m. every day during the summer travel season, efforts are being made to encourage the local residents to utilize the Center's facilities for furnishing them with complete information on all resorts, hotels, motels, and vacation spots in the state.

So far, one other city has followed Portland's lead in establishing a tourist center. Seattle, Wash., impressed with the success of the Portland venture, has opened a somewhat similar tourist bureau on the roof of one of the city's hotels.

Ohio River Pollution Limits Set in Cincinnati Pool Area

SUBSTANTIALLY complete removal of settleable solids and 65% reduction of biochemical oxygen demand in organic wastes discharged into the Cincinnati Pool during periods of low flow is the requirement set by the newly established Ohio River Valley Water Sanitation Commission, according to Edward J. Cleary, Executive Director. The requirement was adopted April 6.

Chairman of the Committee that determined the standards was B. A. Poole, technical secretary of the Indiana Stream Pollution Control Board. Other members were F. C. Dugan, Director, Division of Sanitary Engineering, Kentucky Department of Health; F. H. Waring, Chief Engineer, Division of Sanitary Engineering, Ohio Department of Health; John W. Wiseman, Ohio River Division, U. S. Corps of Engineers, and M. LeBosquet, Jr., Senior Sanitary Engineer, U. S. Public Health Service.

The recommendations were detailed at a public hearing in Cincinnati on February 16. No protests were offered despite the fact that the requirements are higher than the minimum of 45% removal of total suspended solids (about 35% BOD reduction) as set forth in the Compact of Eight States under which the Commission functions. The Compact provides, however, that higher standards may be promulgated wherever this may be found necessary. In fact, so strong is public sentiment for stream-pollution abatement in this area that municipal officials, on whom will fall the burden of complying with the recommendations, expressed themselves as unanimously in favor of the requirements.

The pool, which receives the discharge of wastes from Cincinnati and several northern Kentucky communities, including Covington, also serves as the raw-water supply for these cities.

Corrective measures for pollution control in the pool already are under way. Cincinnati will probably begin construction work early next year on one of two projected sewage-treatment plants. Plans have been prepared by Havens and Emerson, consulting engineers. To aid in financing the work, the city put into effect in the summer of 1948 a sewer rental ordinance which produced funds of about a million dollars.

On the Kentucky side of the river, Covington and neighboring communities have joined together in forming a sanitation district. Comprehensive plans for joint sewage-treatment facilities are now being developed by Vogt, Ivers and Seaman, consulting engineers.

Water Quality Objective

For purposes of treatment-plant design the committee established a water-quality objective of 4.0 ppm of dissolved oxygen at the bottom of the oxygen-sag curve for the Ohio River below Cincinnati. This figure is taken as a daily minimum as measured by the average of three samples taken on a range across the stream, one sample of which is at midstream and the other two of which are at the quarter points. It is expected that the dissolved oxygen at one or two of the points on the range may be below the specified figure. However, it is also expected that oxygen results on ranges above and below the bottom of the sag point will be higher than the specified 4.0 ppm.

During one summer in 20 years a BOD reduction of 65% will not be adequate to attain the objective specified. However, says the committee, 65% treatment is the limit that can be reasonably justified.

The public hearing was conducted by Joseph L. Quinn, vice-chairman of the Commission. Mr. Quinn was formerly Indiana State Sanitary Engineer and is now engineer for The Hulman Company of Terre Haute, Ind. The other Commissioners serving on the hearing board were Kenneth M. Lloyd, Executive Secretary of the Mahoning Valley Industrial Council, Youngstown, Ohio, and Henry Ward, Commissioner of Conservation for the Commonwealth of Kentucky.

Parking Authority Wants Facts

THE new Parking Authority of the city of Paterson, N. J., recently engaged the Knappen Tippetts Abbett Engineering Company of New York to make a comprehensive economic and engineering study of the parking problem in that city.

A survey of parked cars in the central business district will be made between 8 a.m. and 6 p.m. on a weekday, and between 6 p.m. and 9 p.m. on both a typical evening and on a shopping evening to determine the origin and destination of parkers, present parking pattern and volume, and future parking demand. Determination will then be made of the number, type and location of off-street parking facilities required to relieve the congestion that at present plagues Paterson.

Municipal **P**ublic **R**elations

The City Tells Its Story

By HENRY DAVIS NADIG, *Director of Public Relations, New York Regional Plan Association*
Executive Director, Association of Municipal Public Relations Officers

The Media of MPR:—the Conference

STILL to be developed to the most advantage as a medium of municipal public relations is the conference or convention—a channel already widely used but which, I believe, will be greatly strengthened and given more effectiveness with increased application of wise MPR.

Conferences relating to municipal affairs appear to be of two kinds: (1) those of, by, and for city officials and employees, and (2) citizen conferences (in which city officials usually participate).

To this eventually should be added a third type of conference which, so far as I know, does not yet exist; the conference staged by municipal officials *for* citizens and in which citizen leaders are invited to participate. (Of course, the open City Council meeting, the public hearing and, often, Planning Commission meetings and similar sessions are in a sense specialized examples of the third type of conference.) What is needed is for the municipality to go half-way on its own—the way citizens go half-way (and often much more) on their own.

Examples of Type 1 Conference include those held by such groups as The International City Managers' Association, the Municipal Finance Officers' Association, the American Society of Planning Officials, and the Canadian Federation of Mayors and Municipalities.

Type 2 includes the National Municipal League conferences on government, the New York State Citizens Conference, the conferences of the American Planning and Civic Association, regional and state-wide citizens planning conferences, and a host of other citizen conferences of varying types.

In analyzing the conference as a medium of MPR and in trying to show how other media and various techniques of MPR can be brought into play to make the conference medium more fruitful, we should know first what the conference is being held for.

Obviously associations, institutes, leagues, and societies concerned with government and civic improvement from the official or the citizen viewpoint must meet at least once a year to exchange ideas. What has happened during the year—new developments, new ideas and objectives—need to be reviewed. New directions must be set; old and time-tested courses strengthened.

This we all know—and take for granted. But good MPR doesn't stop there—and a good MPR man, working on a conference, wants to know just what that conference is intended to point up. What is its specific aim? To him it can't be just another conference. It has to try to get somewhere, put something across sharply.

Success of the conference depends very clearly upon careful integration of program subject-matter into a complete whole—a whole whose parts are so co-related that they can be regarded separately, but which inevitably are ineffective unless considered with and as parts of the whole. Strength, direction, impact must be achieved.

And how is the impact of the conference measured? First, in inverse ratio to the number of yawns and drooping heads at the conference; second, in the amount of action on the home front emanating from experience meeting at the conference.

Advance Preparation

You can make or break your conference by putting or failing to put a lot of work into it in advance of the meeting date. Maybe that sounds too obvious to mention. But let me go on.

If you can pick your main speakers and your panel participants with studied care as to individual fitness for the particular subject, and then if you can get panel groups together a few days or a week or so *in advance* of the conference itself for a kind of stage-setting meeting, you will have gone far to insure a real live pace in your various sessions.

This practice should: give impetus and direction to sessions; streamline speeches, and leave more time for valuable discussions from the floor.

Such a procedure, however, is not generally possible. But while it may not be made to apply to national conferences drawing persons from all parts of the country, it definitely is possible and practicable in state and regional meetings. On the other hand, a good briefing of participants coming from over the nation to conferences will contribute perceptibly to smooth performance. Exchange of notes would seem to be entirely within reason and might be requested, if not required.

Which brings up the question: are we stiff in requirements for speakers for our conferences? Or can't we afford to be stiff—for reasons of finances or otherwise? Are we generally content, in making up conference agenda, to go at it rather glibly, not entirely satisfied but letting it go at that? Are we overburdening our conferences, loading them up for effect—but thereby not achieving effect?

Press Relations

If you are satisfied that your conference is the world's best so far as agenda is concerned, who's going to know about the conference besides the participants and your own organization? Success is still not assured unless you tell your story before, during, and after. Unless the press is wholly in on your sessions to get the story back home, you can't expect the response and action at home and abroad that you'd like to see come out of the conference.

Provide adequate but not overdone advance news releases for press and radio use. Inform special writers concerned with your subject about details of the conference that might interest them. Invite them to attend any and all sessions. Above all, provide a press table *right up front* at all dinner and luncheon sessions (and breakfast sessions, too, if you have them), and give meal tickets to the covering reporters and editors, radio, and magazine writers.

Special press quarters at conferences are essential, with phones and typewriters within easy reach—according to the size and needs of the conference. Copies or abstracts of all available speeches and of programs should be available, obviously, and often these can be supplied as a kit in a large envelope for each reporter.

Your organization's public-relations man, if he is experienced and conscientious, will be on hand at all times to give what assistance he can to newsmen; but he will not get in their way.

He'll tip them off on this or that; he'll know what might make news; he'll be quick to arrange interviews and pictures. He will let the press work the way it wants to and knows how, usually, and not try to write their stories for reporters.

Insufficient attention, I believe, is given to the press at the average conference. It is not enough—if you're really interested in having your story told well and thoroughly—just to provide a press room and meal tickets. (And I don't mean you need to have cocktails: reporters don't like to be coddled). You must not let reporters have a hard time finding what and whom they want. You must not let them go away feeling they couldn't do the job they wanted to, dissatisfied at the way your press relations were handled. That is why one man must keep the press on his mind throughout your conference for your conference's sake.

Special radio coverage is sometimes possible and feasible. It can be arranged in advance and often augmented, as the conference proceeds, with interviews and possibly discussions on the air. Where conferences are held in a city equipped with an official MPR man, he should be called upon to assist your organization's PR man in both radio and press arrangements. That is part of his job. Are conferences taking full advantage of radio? It can help make the conference more effective.

A Feeling of Busy-ness

Why is it that some conferences lag? (Let's not kid ourselves: we know they do, so why not face up to it and overcome it?) Perhaps if we ask a few questions we may be able to get at it.

Is your agenda busy, lively? Or have you crammed too much into it? Could you do in one or two days what you are now doing in three or four? Have you a surfeit of "dull" papers—possibly with interesting content but no life in their presentation? Is there too little time for discussion from the floor? Are you split too many ways? Is the crux of the matter lost in an uncoordinated program?

Do busy-ness and affability characterize your conference manager or chief director? Is there a sense of alertness and vivacity among the conferees? Do you find new friends, new interest, new ideas developing?

How much is the conference city interested in what you are doing? How much interest is the conference itself showing in subject-related things in the conference city?

Do the conferees know about all that is taking place and going to take place at the conference—some of which might not have been formally programmed?

The Canadian Federation of Mayors and Municipalities and the ICMA have a clever way of keeping their conferences just a bit more interesting: they get out a one-page mimeo news sheet every morning telling of the events of the day—complete with city tours and entertainment for the wives.

Do you have exhibits that attract attention for their uniqueness of display or arrangement? Are you dramatizing your sessions with readable charts, pictorial presentation, and motion pictures where feasible?

A feeling of real busy-ness, of something going on all the time of interest, of new vistas opening up—this seems essential to a successful conference.

Conferences in our field should become increasingly important as an MPR medium—as a means of getting the city's story over to the public and of obtaining for municipal government much valuable thinking from the public. Official-citizen relationships will become more clarified, cooperation and real understanding more prevalent as conferences and public relations techniques improve.

An interesting future lies ahead in further development of the municipal-citizen type of conference, taking this down from the state level to the individual municipality itself. In a sense, such a conference is akin to the old town-meeting idea, lacking only the angle of official governmental action.

Such a conference (or forum, if you will) called either for opening up special issues (not political) or held at regular intervals for tackling important city problems, could be handled so as neither to conflict with official council considerations nor to become confused or confounded with current "politics."

Differing from the civic forum or town-hall type of association financed by public subscription, the municipal-citizen conference would be paid for out of the city treasury with the taxpayer footing the bill. Under a well-operating MPR setup, such a conference would be held by the taxpayers to be a part of their fuller participation in government—a participation which they know in the long run is likely to give them better and more economical local government.

You may say that city government has enough to do now, without going in for this sort of "extra-curricular" activity. But wouldn't this type of conference by its very nature lead to lessening of the official burden and possibly even simplification through the increased understanding it would promote?

The "Tree City's" Entrance Sign

KENT, Ohio, is "The Tree City" and it does care who knows it! Some time ago the City Council passed a resolution making the title official. Now there are five beautiful signs spotted strategically on the five main arteries. Admiring the first sign to be displayed are, left to right, Mayor Frank J. Dangler, Jr.; Martin L. Davey, Jr., president of the Davey Tree Expert Company, which contributed the signs as a public service; and M. W. Staples and D. Q. Grove, Secretary and Chairman, respectively, of the Kent Shade Tree Commission. Kent's progressive tree-care program was described in THE AMERICAN CITY, November 1948, pages 108-109.

The Municipal Marina

A public venture aiding the boat-owner while increasing municipal revenue

Haven for north- and south-bound skippers, the West Palm Beach Marina, West Palm Beach, Fla., is typical of the municipal marinas offering complete facilities for both local and transient yachtsmen. The marina, only three blocks from the city's business center, is located on Lake Worth, adjacent to the intra-coastal waterway and has slips for 146 craft. Reservations for 60% of the basin's entire space for the forthcoming winter season were received as early as last March. Note the municipal parking area adjacent to the basin.

THOUSANDS of Americans have found a new design for living, a pattern of leisure-time activity which invites entire families to share a healthful outdoor life along thousands of miles of rivers, lakes, and coastal waterways. This new life is a life afloat—a way of living found in the field of recreational boating. On the sports front, recreational boating has become a national pastime, gaining regional impetus through thousands of yacht clubs sponsoring annual regattas and cruises.

Early this year the Coast Guard listed 441,137 numbered motorboats — those over 16 feet in length — in the United States. Added to this figure are 3,540 documented yachts plus millions of unnumbered craft and sailboats which fall outside of Coast Guard classification. During this year, 1949, boatowners in the United States will spend approximately $500,000,000 in the maintenance and operation of their craft, excluding the typical week-end skipper's expenses for food, provisions and entertainment.

With the growth of recreational boating, it was only natural that there should follow the subsequent growth of marinas, yacht basins designed to offer the boatowner a safe, permanent haven in which to moor and completely service his craft. The modern marina is not only a berthing or mooring area but is also the site at which a skipper can take on fuel and water, purchase stores and provisions, step ashore for a hot bath in a clean, dock-side shower room, and—in some cases—haul his boat upon a marine railway for painting or repairs. It is this type of marina which is being built throughout the country by private interests and municipalities alike, for an ever-growing legion of boatowners.

Revenue-Producing Investment

Within the past decade, the municipal marina has come to the fore as a sound, revenue-producing investment for the town or city fortuitously located on a lake, river, harbor, or coastal waterway used for large-scale recreational boating. Naturally, municipal marinas vary in size, largely in accordance with the amount of water-front property available for their construction, together with the extent of the need for safe, protected mooring areas.

In California, Los Angeles County is planning the largest marina in the world, a project designed to accommodate 8,000 boats. The huge basin, which will be called Marina Del Rey, will cover 871 acres and will cost about $25,000,000.

While the Marina Del Rey is indicative of the scale upon which it is possible to build a large marina, there are many smaller projects which have proved themselves robust, thriving ventures. The City of Eureka, north of San Francisco, constructed a boat basin entirely from war surplus materials. This 200-boat marina on Humboldt Bay was built with 774 pontoons purchased from the War Assets Administration. While the Eureka project, financed by a $200,000 municipal bond issue, was primarily intended as a basin for small commercial fishing craft, the same type of construction can be readily utilized by cities planning accommodations for recreational boats.

The West Palm Beach marina, a municipal project on the intracoastal waterways at Lake Worth, Fla., is another example of successful civic planning. The marina, which accommodates 146 boats, has operated at capacity since its inception. Reservations for 60% of the basin's entire space for the forthcoming winter season were received as early as last March.

One of the most extensive northeastern marinas now in operation is that at Atlantic Highlands, N. J., another civic project which opened early this year. The marina, located inside Sandy

Hook Harbor, has proved a boon to boatowners along the New Jersey and metropolitan New York coasts. Built upon waterfront property which the City of Atlantic Highlands is now landscaping as a park site, the new basin has six piers, each 400 feet long, providing berths for 260 boats. An outer breakwater 4,000 feet long, built of quarried traprock, affords full protection for the marina's 190-acre anchorage. A municipal parking lot at the marina site can handle 300 cars daily.

In outlining the method of planning a typical municipal marina, C. A. Chaney, formerly of the U. S. Engineers Office, who is considered the country's foremost authority on the construction of marinas, emphasized the importance of selecting a site for construction. Chaney pointed out that anchorage areas cause a tremendous loss of valuable space and should be permitted only when there are insufficient funds for slip construction or when the area is not needed for more profitable use. Boats at anchor or tied to buoys occupy several times as much space as boats in slips. Chaney has long advocated that municipal leaders consider a carefully prepared over-all plan of the harbor on which they expect to build a marina. Careful consideration, he points out, will later prove of benefit should local authorities seek federal aid in improving or enlarging their harbor, or when an increase in boating will demand increased docking and mooring facilities.

The ideal site for a municipal marina should also be selected to include bus or street-car transportation from the water front to the city's shopping district. If possible, a marina should be far removed from factory, industrial, or large-scale commercial fishing plants, all of which detract from the boatowners' idea of a quiet and peaceful haven.

Rentals and Other Income Sources

The income from a municipal marina may be derived from several sources, the most important of which is the rental of slips or "stalls." Two years ago the National Association of Engine and Boat Manufacturers conducted an Atlantic and Gulf coast survey which included 64 marinas—both private and municipal—accommodating 3,680 boats. The average rental rates on a daily, monthly, and seasonal basis were as follows:

Length of Boat	*Day Rate*	*Monthly Rate*	*Seasonal Rate*
20 feet	$ .75	$15.06	$ 72.92
26 "	.84	17.02	85.00
34 "	.97	19.52	100.88
42 "	1.12	22.35	119.12
50 "	1.27	25.21	136.46

In addition to slip rentals, which provide a constant source of revenue, most marinas augment their income through the sale of fuel, ice, marine accessories, soft drinks, and refreshments. The immediate income from a marina, that which is made at the dock site, is "direct income." For the small municipality sponsoring a marina there is another form of income of equal or even greater importance. This revenue is "indirect income" or off-the-dock expenditures by boatowners. Many skippers leave their craft to go ashore and buy food, stores, clothing, and to patronize local bars, restaurants, and places of amusement. Statistics compiled by the National Association of Engine and Boat Manufacturers show that a vacationing yacht party and crew spends approximately $1,100 a month while their craft is berthed at a marina. While a permanently based boat does not spend as much per year as the visitor, the expenditures are spread out over an entire 12-month period, thus resulting in a more uniform long-term source of revenue.

Marinas, both private and municipal, have increased with the growth of recreational boating. It is the latter, the municipal marina, which offers one solution to the long-standing problem of how to improve waterfront real-estate values while, at the same time, aiding the boatowner and providing a source of revenue for the city or town sponsoring such a project.

Atomic Energy for Power Plants—When?

Not in the near future, these experts agree

By R. E. McDONNELL
Burns and McDonnell Engineering Company
Kansas City, Mo.

FREQUENTLY boards of public utilities and superintendents of municipal power plants ask whether atomic energy for power plants is near enough to be considered seriously in any present expansion program. I have endeavored to answer this by drawing from the Atomic Energy Commission and other organizations intimately connected with this vital development in modern civilization.

The first question is whether atomic energy is available for power plants irrespective of its cost. The comments of Commissioner Sumner T. Pike of the U. S. Atomic Energy Commission before the Engineers' Council of Houston, Texas, answer well. He says in part that it will be at least five years and probably more like ten or fifteen.

Another question is this. Suppose that the plant were practical mechanically. Should we place a plant powered by atomic power in the average community? Can we do so with confidence that it will be safe? Ward F. Davidson of the American Institute of Electrical Engineers, gives us an answer to this. He stated in the October 1948 issue of *Electrical Engineer* that "In making a comparison of nuclear and fuel-burning power plants, it should not be assumed that they can be placed on sites equally advantageous with relation to load. Until years of successful operation have proved their reliability, no prudent engineer would place a large nuclear-power station in the heart of a large city or in a densely populated or industrially important area. The ever-present chance, however small, that something might go wrong and release large amounts of intensely radioactive material would dictate sites in areas where a failure would be less disastrous.

It has been suggested that nuclear-power plants offered particularly attractive advantages in areas where adequate supplies of condenser cooling water were not available in lakes or rivers. All that can be said with certainty is that at some time in the future, nuclear-power plants may not be influenced as adversely as fuel-burning power plants by the lack of natural cooling-water supplies."

Thus, on the basis of these statements, the engineers are going to have more to learn about nuclear energy before they put such a power plant in the heart of your community.

The U. S. Atomic Energy Commission, in its report of July 1948, closes its chapter 4 on atomic power with this statement: "Even on the assumption of a most favorable and rapid technical development along these lines, a word of caution is needed as to the time scale. We do not see how it would be possible under the most favorable circumstances to have any considerable portion of the present power supply of the world replaced by nuclear fuel before the expiration of 20 years." They further state that the cost of nuclear-fuel power plants will be greater than coal-burning plants of similar capacity.

With this in mind, it looks as though we are justified in designing power plants according to familiar standards with the confidence that they will serve economically for their anticipated useful life. We are in the atomic age, but we haven't yet reached the atomic industrial revolution.

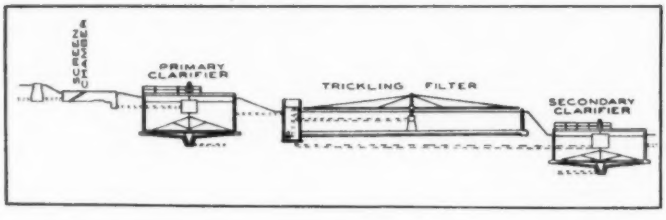
WHITE HALL, ILL.

A Small City's Sewage-Treatment Plant

Here is the White Hall, Ill., sewage-treatment plant, which shows the clarifier, trickling filter, the digester and the control house.

By J. PAUL RHOADS
Caldwell-Rhoads Co.
Consulting Engineers
Jacksonville, Ill.

Financing program spreads costs equitably and overcomes objections that blocked the improvement for 35 years



AFTER 35 years the City of White Hall, Ill. (population 2.928, 1940 census), has solved its problem of sewage treatment by the construction of a sewage-treatment plant.

The first sanitary sewers were constructed in the city in 1914 with plans prepared by our firm. This sewerage system covered only two-thirds of the city area. Treatment was effected by a septic tank located in the southwest part of the city, with an effluent line discharging into a creek about one-fourth mile south of the city limits. This treatment and disposal led to numerous complaints from city residents because of the odor nuisance, and from property owners on the creek because of the contamination of its waters.

In 1928 an outfall sewer line was constructed, with plans again prepared by our firm. This discharged the sewage into the same creek at a point approximately one mile south of the city, selected because of its ultimate use as the site of a sewage-treatment plant. This site was well suited because it allowed gravity flow from the entire city. Numerous efforts were made during the next 20 years to finance the construction of a treatment plant. All such efforts failed until 1947.

Financial Considerations

The reason for the town's taking action now instead of during the prewar years when PWA grants could have been obtained probably rests in the arrangements now made for local financing. When the original collection system was built it covered only a part of the town and was financed by special assessment. This averaged about $35 per city lot and was paid only by those property owners served. The proposed treatment plant of necessity had to be built to serve the entire city. However, those property owners who had paid for their own collection system didn't feel inclined to pay for a treatment plant to cover the entire community; and those without sewer service could see no advantage in assisting in paying for a plant that would not benefit them directly. It was there that the matter stood for a number of years.

These arguments were overcome by the present financing system. The existing water and sewer systems were combined; water-sewer revenue bonds were sold to finance the construction of sewer extensions and the plant. Sewer extensions now reach the entire town. To offset the $35 special assessment cost to the original property owners, a collection charge of $35 was placed on all new services. This seemed equitable and there were few objections to the improvement.

In June 1946 the city received approval of plans for the extension of sewer lines to all sections not previously served, and for a complete sewage-treatment plant. These plans were also prepared by the Caldwell-Rhoads Company. Construction was completed and the plant placed on operation in December 1948.

Designed for 4,000 People

The plant is designed for a population of 4,000, with provision for expansion should it prove necessary. It consists of a screen chamber, primary trickling filter with rotary distributor, secondary digester, sludge beds, control and pump house.

Original plans called for a mechani-

cal sewage cutter and flow recorder in the screen chamber, but it was necessary to eliminate these units because of the shortage of funds. However, manual screening is provided for and the screen chamber is so constructed that these units can be added without difficulty at a later date as funds become available.

Plant Equipment

Primary treatment is effected by means of a circular tank 30 feet in diameter equipped with an Infilco WS clarifier mechanism consisting of sludge-collection equipment, an automatic hydraulic scum-collecting device, and an automatic scum valve for removing floating material. A retention period of 2½ hours is provided by the primary, which gives a reduction of 35% in BOD. The clarifier mechanism is powered with a ½-hp vertical weather-proof electric motor.

The trickling filter consists of a circular tank 86 feet in diameter with 6½ feet of filter media. It is designed around the Accelo-Filter principle of recirculation in which 100% recirculation of the filter effluent is provided. Effluent from the primary tank is received in a control well where it is mixed with an equal amount of filter effluent.

High-Rate Filter Savings

This mixture is applied on the filter with half passing to the secondary tank and half being returned to the control well for recirculation through the filter. This high-rate filter has several distinct advantages. In the first place a higher loading can be placed on the filter with a consequent reduction in the size of the unit. In this case the diameter of the tank was reduced from 104 feet to 86 feet or about one-third.

This reduction in original cost and consequent saving is especially important in these present days of high costs. A second advantage of high rate of application on the filter is the elimination of odor and fly nuisance and the increase in biological filter efficiency.

The most distinct advantage, however, is the flexibility of the plant capacity, which permits handling of heavy loads without additional increase in the size of the sedimentation tanks.

The filter is equipped with a reaction-driven mercury-seal Infilco rotary distributor. Recirculation is accomplished with two vertical non-clog close-coupled pedestal-mounted Yeomans sewage pumps, each with a capacity of 556 gpm. Each pump is powered with a 5-hp electric motor, and is equipped with automatic control equipment which causes them to operate singly or in parallel, depending upon the rate of flow.

Secondary sedimentation is accomplished with a circular tank 30 feet in diameter, equipped with an Infilco WS clarifier mechanism similar to the equipment in the primary tank, except that the automatic skimmer is omitted. The rate of recirculation of the filter effluent is accomplished by the setting of the secondary tank weir. Secondary sludge is normally returned to the primary tank but may be pumped directly to the digester if desired.

Sludge digestion is performed in a circular tank also 30 feet in diameter. The fact that the primary and secondary tanks and the digester are all 30 feet in diameter permitted the contractor to re-use the forms on these units with a consequent saving in form costs. The digester is equipped with heating coils, and is covered with a fixed concrete cover. An Infilco VC digester mechanism was installed together with Varec gas-collection and safety equipment. Sewage gas is collected and utilized for heating the control house and in heating water for the digester heating coils, thus reducing operation costs. Supernatant liquor is returned to the primary tank or is passed on to a supernatant bed. Sludge is passed from the digester to the sludge beds by gravity.

Sludge beds have concrete walls and concrete driveways. Liquor from the sludge is returned to the control well in the pump house to be passed over the filter again.

Sludge from the primary and secondary tanks is pumped by a Simplex domestic plunger sludge pump located in the control house. It is powered with a 2-hp electric motor.

Plant Costs

The entire cost of the sewage-treatment plant was approximately $130,000. It was financed by the issuance of water-sewer revenue bonds which will be retired over a period of 35 years. Construction work was performed by H. A. Grabbe Construction Company of Alton, Ill. The present city administration, headed by Mayor Roland Frame, is to be congratulated upon accomplishing something during this period of high construction costs which the city had been attempting to do for a period of 35 years.

Noonan Calls for Scientific Assessing

ASSESSMENT districts that cannot afford a full-time assessor using up-to-date procedures should be abolished, said Albert W. Noonan, executive director of the National Association of Assessing Officers, at the Detroit Hotel Statler on May 23. "Equitable distribution of the property-tax burden depends on the local assessor, and unless he is using a so-called 'scientific system' there is little chance that the assessment roll will be an equitable one. The steps are:

"1. Obtain a set of good maps of the assessment district and properly identify all property. Then make a thorough inventory in the field to determine all improvements. After the inventory, copies of all permits to build, repair, enlarge, destroy, or remove structures, as well as reports of fire losses, should be furnished the assessor.

"2. List all real-estate parcels accurately and in geographical order with names of the owners. When listed this way it is easier to check against the tax map. Property to be assessed must be so clearly described that its identification is certain.

"3. Appraise land and improvements separately. Improvements should be appraised by establishing reproduction costs. Appraisal of land parcels is by comparison with other parcels whose market values are known."

New Refuse Collection Trucks for Rome, N. Y.

Commissioner Ira Elmer and two of the public works staff examine new refuse trucks that serve Rome. New units are Gar Wood Load-Packers on Mack trucks.

Scientists Examine World's Natural Resources, National and Local

United Nations holds first world-wide scientific conference to discuss conservation and utilization of resources

DURING the latter part of August and the first week in September more than 650 scientists gathered at Lake Success, responding to a call from the United Nations. Delegates came from all over the world except that part that lies behind the famous "iron curtain" and assembled under the banner of United Nations Scientific Conference on the Conservation and Utilization of Resources (UNSCCUR). Yugoslavia was also represented.

The conference was opened optimistically by Secretary of the Interior J. A. Krug. He felt that even though the earth's population was growing faster than ever before in history, we still should find it possible to raise living standards and produce food and shelter for all.

On the matter of food Sir Herbert Broadley, deputy director-general of the Food and Agriculture Organization of the UN, disclosed that recent years have produced remarkable increases. From the days of the Romans to as late as 1850 farmers were able to grow only 10 bushels of grain to the acre. Now this has been raised to 40. Fishing, he said, still is in the nomadic hunting stage and offers opportunity for great development.

To show how old the problem of conservation is, Fairfield Osborn, president of the Conservation Foundation, located in New York, quoted a passage from Plato's *Critias* that might easily have been echoed today. In this passage, the teacher-philosopher grumbled bitterly about soil erosion, widespread deforestation, and loss of rainfall, just as do the modern scientists. Mr. Osborn pointed out further that although the world's population has doubled in four generations, iron production has increased five times as fast as the population has increased. In this same period, the production of zinc has increased five fold and copper ten fold. He also noted that in 1946 the petroleum industry produced 1½ times as much of its products as it did in the first 43 years of its exploitation.

Some difference of opinion arose on the amount of fuel available. John C. Parker, nominated to discuss the problem by the World Power Conference, asserted that there is plenty of fuel for use for centuries. Shortage of coal, for example, was only a shortage of the more easily mined seams. He also spoke confidently of other sources of energy directly from the sun's heat or through nuclear fission. However, Emmanuel de Martonne, member of the Académie des Sciences, Paris, felt that coal and mineral oils are threatened with exhaustion. Marcel Leloup, a director in the Food and Agriculture Organization, of Washington, D. C., spoke of a growing shortage of wood, but said that it could be overcome by proper action.

Mineral Resources

An indication of how the world stands on its mineral resources was outlined by H. L. Keenleyside, Canadian Deputy Minister of Mines and Resources. He pointed out that our knowledge of the world's supply of mineral products is so meager and so unreliable that one cannot accurately forecast any critical shortage. Further, he felt that there was no serious, immediate problem with any essential mineral. Nevertheless, if the demand increases, if the entire world's population decides to use minerals on a scale comparable to the Americas, there may be.

On the subject of water resources, Merrill Bernard, Chief of the Climatological and Hydrologic Services of the U. S. Weather Bureau, pointed out that even in the United Staes, basic data are so meager that one cannot plan, design, and operate extensive control works adequately. Prof. Abel Wolman, Johns Hopkins University, Baltimore, echoed this statement, saying that the answer to where waters are, and how much there is, is still lacking. O. Victor E. Jansa, consulting engineer, of Stockholm, Sweden, gave water-supply men something to think over when he described groundwater recharge in his country. Because of the quality of surface water, pretreatment of the raw water by rapid sand filtration has been found necessary in most plants.

Stream-pollution standards were examined critically by Ernest W. Steel, consulting engineer of the Instituto Nacional de Obras Sanitarias, of Venezuela. Mr. Steele commented that many existing anti-pollution laws are unreasonable and ignore the self-purification capacity of the stream. He felt that sanitary engineers have sufficient knowledge of stream pollution and recovery to predict the amount of pollution a stream can care for safely.

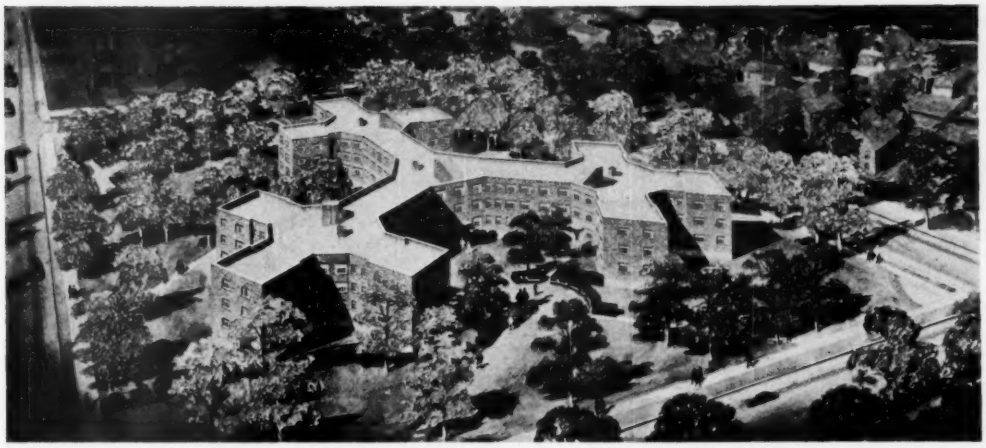
Sewage Treatment

On the subject of sewage treatment, Magnus Wennstrom, consulting engineer, of Malmo, Sweden, outlined the practice of ponding to produce a high-quality secondary treatment at low cost. He described a plant of this type serving Lund, Sweden, a city with a population of about 33,000. Primary treatment reduced the BOD to an average of 158 ppm. The sewage then was passed through a series of 2-foot-deep ponds, with areas of 1.28, 1.11, 1.04 and 3.90 acres. About 530,000 gallons per day pass through the pond system. The estimated detention period is about 8.5 days and the sewage is kept on the move by one-kw circulation pumps with a lift of only about 5 inches. On an average, the sewage passes through each pond about six times before it is discharged into the next pond. Effluent from the final pond shows a BOD count of 20 ppm.

Many other topics were presented for discussion. Some of the more intriguing were methods of stopping thunderstorms, proposals for TVA types of programs for the Tigris and Euphrates rivers, methods of building towers that generate electricity from wind power, and how to heat buildings by the sun's rays.

Akron Police Favor Car Inspection

THE Akron, Ohio (244,791, 1940 census), Chamber of Commerce Car Inspection has been handling autos at a 4,000-a-week-pace. Many of the 200 cooperating garages are checking over 100 cars daily. Recognition by the police of the "OK" stickers placed on cars found without mechanical defects has stimulated the drive. Cars bearing the seal are permitted to by-pass the auto-check lanes operated by state highway patrols. Traffic fatalities have been reduced considerably.



Parkside Gardens, Hempstead, N. Y., as it will be when completed. Architects are Fellheimer, Wagner and Volmer.

Smaller Cities Benefit From New York State's Housing Program

By **HERMAN T. STICHMAN**
Commissioner of Housing
State of New York

THE principal beneficiaries of public housing in this country have so far not been the smaller cities. One reason for this is that people housed mainly in the single-family detached homes of the smaller communities find the multi-story apartment buildings of the big city projects somehow inappropriate, and reject them for their own towns. But the program of two and three-story garden-type projects with generous open landscaped areas, financed by New York State's Division of Housing, should do much to alter that point of view.

Garden-type developments of this kind have already been built in Tonawanda (population 13,000); North Tonawanda (20,000); Elmira (45,000); Schenectady (87,000) two projects; Utica (100,000) two projects; Yonkers (142,000); and Niagara Falls (78,000) two projects. Other cities of varying size in which such projects are either under construction or in the planning stages are Hempstead (20,000), Port Chester (23,000), Schenectady (87,000), Binghamton (78,000), Troy (70,000), Elmira (45,000), Fulton (13,000), Peekskill (17,000), Manhasset (5,000), Port Washington (10,000), Utica (100,000), Syracuse (205,000) two projects), Buffalo (575,000). In the cities of Kingston (28,000), Poughkeepsie (40,000), Watertown (33,000), Rome (34,000), Auburn (35,000), Ithaca (19,000) and Ogdensburg (16,000), similar public housing is contemplated.

The project now being erected in Hempstead, on Long Island, is perhaps typical of these developments. Hempstead is an incorporated village in Nassau County, one of those satellite communities of the New York Metropolitan Area which take the population overflow of the Great City. According to the 1940 census, its population was 20,856, but that figure is probably nearer 30,000 today.

Side Chosen Was Slum Area

The area selected—a city block—was considered the worst slum area in Hempstead and one of the worst in Nassau County. Most of the structures were old and dilapidated, many of them mere shacks. The survey disclosed violations of the Plumbing Code and of the Electrical Code in 90% of the cases. Only about 5% of the buildings had central heating; the rest were heated by kitchen ranges and oil stoves. About 70% of the structures had water closets, but only 18% had full bathroom equipment. All buildings were badly overcrowded.

The surrounding neighborhood is primarily an old residential area now tending toward business usage. A number of single-family residences here have been converted to multi-family and rooming-house use. The neighborhood has a mixed population of Negro and white families. Rents vary from $20 to $40 per month. The area has been in decline for years and the development of a project there will have a favorable effect on the neighborhood.

Neighborhood Facilities

The main commercial center is six blocks from the site, and the village's only industrial area is not more than five blocks distant. A public grade school and a high school are also close by.

A few blocks to the west is the 903-acre Hempstead Lake State Park. The project site itself will include a play area for youngsters. Not far away is the Harriet Tubman Community Club, primarily a home for working girls, but also extensively used as a community center.

Buses are the commonest form of transportation; a bus terminal is to be erected ten blocks from the site. One block away is a bus line connecting with the railroad station to the north and the village of Rockville Centre to the south. Three blocks distant is another bus line running north to Mineola and south to Freeport. The railroad station, from which trains operate frequently to and from New York City (20 miles away), is 12 blocks distant;

the station can be reached in five or ten minutes by one of the bus lines with an eight-cent fare.

The project itself, three stories in height, will provide homes for 81 low-income families. The project will be inter-racial, in keeping with the anti-discriminatory policies of New York State. The site coverage is 13.8%. The Y-shape of the structure was determined in part by the location of the old buildings remaining on the site whose tenants could not now be relocated. In fact, 19 out of 25 residential buildings, on the outer edges of the site, are to remain temporarily, with the three-winged project building itself set on its center.

Each wing will contain 21 apartments, with the center section housing 18 families. There will be an administration office and a large meeting hall in the basement for the use of tenants. The state will provide $960,000 to finance the project, and an annual cash subsidy of up to $33,600 will make it possible to keep monthly rent per room —including gas, hot water, and electricity—to less than $9.

This fall, the voters of New York State will vote on three housing propositions to increase the funds available for building public housing and to provide adequate subsidies to make low rents possible. These proposals call for an increase in the existing $435,000,000 state loan fund for low-rent housing to $735,000,000, an increase from $13,000,000 to $25,000,000 of the maximum amount of annual subsidies the state may pay to help reduce rentals in projects, and an increase from $1,500,000 to $2,500,000 in the annual subsidies which the state may contract to pay in any one year.

Hamiltonians Enjoy City Council Broadcasts

By HUGH M. McINTYRE*
Controller
City of Hamilton, Ontario

THE people of the city of Hamilton sometimes are annoyed, sometimes amused, but they are almost always listening to the twice monthly broadcasts of the regular meetings of their City Council.

The practice of broadcasting the City Council in session direct from the council chambers at City Hall has been in operation for almost four years now. It was introduced in the fall of 1945 as an experiment over Radio Station CHML. The broadcasts are the responsibility of the radio station, which finances the operation out of its own public-service budget without a charge to the Civic Corporation.

When debates of big civic issues are scheduled, I am certain that the broadcasts have a large audience. For instance, at the time of the big steel strike in the summer of 1946 the broadcasts started early in the evening and continued until the "wee sma' hours" of the morning. Almost everywhere you might go in the city, you could hear radios tuned to the council broadcasts.

Citizens Demand Continuance

Once or twice attempts were considered by City Council to stop the practice of broadcasting the council sessions, but the wave of protests from the citizens caused them to die a-borning.

Many of the citizens have told me on occasion that they think the City Council should stop the broadcasts because it is bad advertising for Hamilton. But more people enjoy them, and use them to keep abreast of civic affairs, so the practice has been continued.

From the point of view of the City Council, the broadcasts are a double-edged sword. Prior to election time, regular council meetings have a tendency to be used for electioneering purposes by some city councillors. And of course what mayor, controller or alderman doesn't like to get his point across to a ready-made audience!

However, sometimes in the height of a council debate a councillor may make a slip. But with the speed of sound and electricity, it is gone out beyond recall. On these occasions, the councillor would gladly have the broadcasts banned.

A Better Informed Electorate

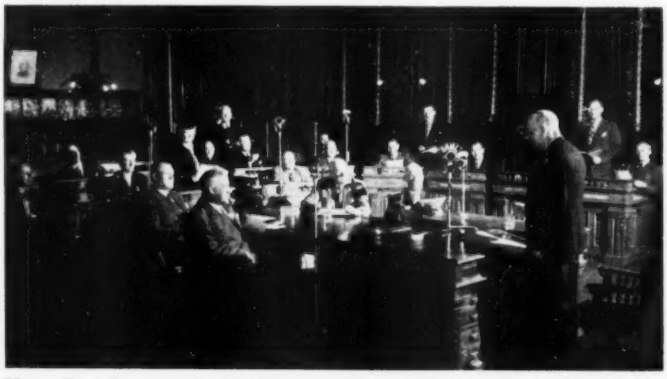
There is no doubt in my mind that the broadcasts do contribute to a better-informed electorate and for that reason are an agency for good.

As a matter of fact, I understand that the idea has since been taken up by several other Ontario city councils, and broadcasts are carried over their local radio stations.

The production of the broadcast is in the hands of the radio station, which sets up a suitable number of microphones around the city council chamber to pick up the voices of all 21 members. Generally the debates are recorded at the radio station and played back at a more convenient hour. However, if the issue up for debate is hot enough, the radio station clears time to put them on the air directly from the council.

There is no doubt the broadcasts annoy some people, but just the same, they listen to them regularly. Consequently, it is unlikely that so long as the broadcasts are produced fairly and are an accurate report of the City Council debates, no city councillor will seriously object to their continuation.

* With the cooperation of A. D. Steubing.



Mayor Sam Lawrence is standing at a desk on the right in the foreground. Seated around the desk are the Board of Control, reading from left to right: Controllers Hugh M. McIntyre, Andy Frame, Walter Chadwick, and Leslie Parker. Seated at the other desks in the background of the photograph are the various Aldermen representing the Wards of Hamilton.

This shows the two clarifiers at Hagerstown, Md. At left is the older rectangular unit; the new circular Hardinge clarifier is on the right.

Hagerstown Doubles Primary Settling Capacity

Corrects thin-sludge problems by installing new clarifier

A DETENTION period of one hour did not prove to be enough in the Hagerstown, Md., sewage-treatment plant, and it caused the plant to be plagued with thin sludge, poorly digested. This problem was outlined by Plant Chemist Don Croft at the Maryland-Delaware Water and Sewage Works Conference held recently in Hagerstown.

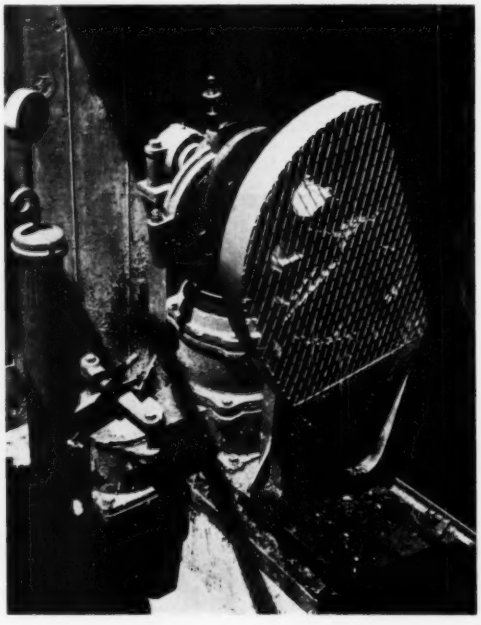
To correct this difficulty, a second primary clarifier was installed, at the suggestion of Mr. Robert Regester, consulting engineer. The tank is of the circular type, 55 feet in diameter, with a 10-foot effective depth and equipped with a Hardinge clarifier. The new tank provides a two-hour detention on a 4-million-gallon-per-day flow. It enables the velocity in the rectangular tank to be reduced from 1.25 feet per minute to 0.63 feet per minute. In the circular primary clarifier, the velocity through it is 0.23 feet per minute.

This increased detention period permits the excess solids to settle, giving a reduction of solids in the primary effluent over the raw solids in the influent. The lower velocity also allows a denser sludge to settle. Present results show 40 to 50% removal of solids in the primary treatment.

The plant is also getting a new Roots-Connersville positive-displacement blower capable of delivering 2,800 cubic feet of air per minute. The existing blowers used in the activated-sludge portion of the treatment provide one cubic foot of air per gallon of sewage on a 4-mgd flow. During periods of daily peaks, at rates of 5 to 6 mgd, there is not enough air for good aeration.

The plant has two heated digesters of the Dorr Company, multi-stage type. The primary digester has a fixed cover and the secondary one is equipped with a floating cover, providing gas storage of 25,000 cubic feet.

Two visiting engineers inspect the Hagerstown plant. At left is W. H. "Pete" Wisely, secretary of the Federation of Sewage Works Associations. Coming out of the pit is Ralph Furman, Chief Engineer of the Washington, D. C., Blue Plains plant. The picture on the right shows the Carter sludge pump they were inspecting.



A motor scooter with a receptacle for carrying tools or street trash makes cleaning quicker and more thorough.

On freeways, a crew moves from place to place rapidly with a small cart and other tools in a stake-body rig.

San Diego Motorizes Street-Sanitation

STREET sanitation is on a strictly hurry-up basis in San Diego, Calif. In this city, the push cart has given way to the Cushman motor scooter with a small body to carry tools and street trash.

In outlying areas the scooters carry a 3-cubic-foot box with the bottom sloped to the door so that it can be emptied easily. In traffic freeway areas, the scooter has a stake-body rig and a small two-wheeled cart that fits conveniently into the gutter. The two can move around easily in the traffic.

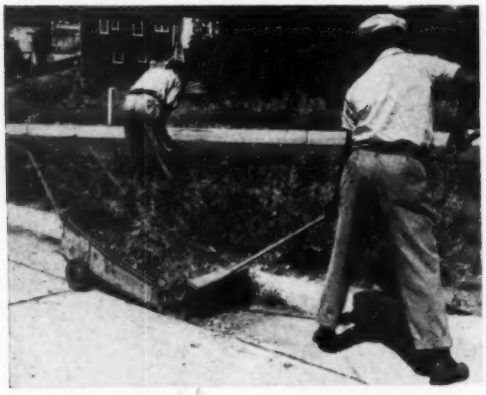
Another feature of the cleaning work is the glass-pick-up crews. These also use a stake-body scooter with broom and buckets to pick up the glass.

San Diego recently expanded its use of scooters in the street division by equipping one for traffic-curb painting in the central business district. The scooter carries a box-type body with sections for cones and stencils, and is equipped with a small air compressor, driven by a power take-off. Paint is applied with a pressure-fed roller. This is, at present, used only for curb markings, but it will probably be utilized for pedestrian crosswalks and similar markings. The use of the scooter makes this work feasible during business hours.

This gear is used for picking up glass.

Cheaper and More Convenient

The work is under the direction of Fred A. Rhodes, Director of Public Works. Mr. Rhodes finds the scooters able to handle an adequate amount of sweepings, and much cheaper to operate than trucks. In addition, they are easier to park and offer less of a traffic hazard.



The two-wheeled cart fits nicely into the gutter of the freeway and makes it easy to keep the roadside clean.

Curb-painting and traffic-lane marking is facilitated by the motor scooter, here equipped with an air compressor.

The Canton electric plant. Sandbag barricades are a reminder of recent floods.

How Canton Electric Plant Beat "High" Operating Costs

Price of fuel oil and high water in the Mississippi are two problems solved by this municipal system

By W. A. DOWNEY
Plant Superintendent
Canton, Mo.

HIGH operating costs in the post-war era seem to have presented themselves from all sides in the operation of our municipal electric plant. The principal boost that hurt the economy of the plant was the price of diesel fuel. Another "high" that threatened to put the plant out of commission was the floodwaters of the Mississippi. Fortunately, I believe, we have worked out the answer to both.

The floodwaters came in 1947 and 1948. Canton normally can expect protection from the Canton Dam located upstream, and in the traditional Missouri River levees. But in these two years, the river rose out of its banks, and we had to put in a sandbag protection plus 14 pumps to get rid of the seepage. For a safety measure we still have a $5,000 sandbag ring around the plant.

The answer to the high price of fuel oil wasn't so easy, however, although nobody thought that sandbagging the plant was simple when we did it. But before going into that phase of our work, let me describe the plant and system.

The plant was built primarily to serve the 2,200 people of Canton. Today, however, with the interest in rural electrification high, about 70% of the output goes to Rural Electric Corporations near by. Our price to these cooperatives has averaged 1½ cents per kw-hr. Another big customer is the lock and dam, which receive electricity at a flat rate of 2 cents per kw-hr. At the same time the people of Canton purchased electricity through their many domestic and industrial outlets at an average price of 3½ cents.

Plant Originally Steam-Powered

The plant originally was steam-powered, using the old Corliss-type engine. When diesel power was first presented, these steam engines were supplanted by two Fairbanks-Morse semi-diesels, one 100-hp and one 200-hp. Later a 350-hp Busch-Sulzer diesel was added to the set. Today these are gone, and we have in their place a Model 32 Fairbanks-Morse diesel that was installed in 1932, an 805-hp F-M diesel installed in 1938, and a 690-hp F-M diesel installed in 1940. In 1946 we received a 1,200-hp F-M diesel and in 1948 we installed still another.

While the demand for power has constantly grown, the financial picture has always looked good. We were able to lay away, after depreciation, $10,000 in 1940, and nearly $21,000 in 1947.

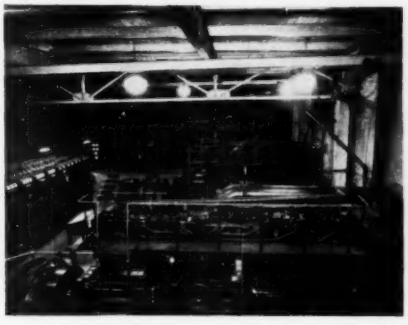
About that period the rising cost of fuel oil caught up with us. When it hit 13.5 cents per gallon delivered, our profits dropped back to $10,000.

One way to cut those prices is to use a less expensive fuel oil if the engines will operate successfully with it. Consequently, we looked into the use of Texas crude that cost 3 cents per gallon less than the fuel we were using. If we could operate with it and save 3 cents a gallon we felt able to bank more than $20,000. We started this practice in May of last year, and while full operation data have not yet been tabulated, the records indicate rather plainly that our supposition is correct.

During last summer the engines produced better than 12½ kw-hr per gallon of fuel, or more than one kw-hr above previous performance. The only added operating cost was that of stepping up the fuel-nozzle-cleaning schedule.

The plant gets its fuel oil by tank car, unloaded by a motor-driven Roper rotary pump into three storage tanks with a combined capacity of 38,000 gallons. The oil passes from these tanks through a plug-type Midwest filter to a 1,000-gallon supply tank within the plant and then is pumped through Buffalo and Worthington-Gamon meters to individual day tanks that supply the engines. Duplex Nugent filters are mounted on the engines.

The engines all use Sinclair Gascon D lubricating oil, but have various types of lubricating oil purifiers. On the 1,200-hp engines, the oil passes through individual Midwest filters using a waste-



The five diesel engines which furnish the power.

type filtration plug. On the 805-hp and the 690-hp engines a Diesel Service activated clay batch purifier does the same task. The 300-hp engine is served by a Hilco-Hyflow filter using a waste-type element. Each engine is equipped with a Schutte and Koerting Lube oil cooler and strainer.

For the engine-jacket water, the engines use the city's softened supply. Four Sims heat exchangers do the work, drawing water from the Mississippi.

Intake air is filtered, in the case of the two big engines, through duplex oil-bath filters, and silencers mounted on a high steel platform behind the plant. Exhaust silencers for these engines also are mounted on the platform. A motor-driven Quincy air compressor supplies starting air.

The plant has four alarm panels to assist the operators. Each panel holds an Alnor exhaust pyrometer and Marshalltown gauges with low-pressure alarms and lube and soft- and raw-water lines.

The plant is operated under the general supervision of Mayor Merl Hammill and a five-member Board of Trustees.

Small Maine Town Benefits From Three Months With Manager

By RICHARD J. CONNOLLY

HOW does a staid New England town react to a young stranger who grasps its municipal reins and promises to lead the community along a road of improved operation?

South Berwick, Maine (1940 population 2,046), has the answer. As a whole, the town extended a friendly hand of welcome to the ambitious newcomer, patted him on the back encouragingly, and then sat back, a little skeptically, to see what he could do.

Robert B. Weiss, 27-year-old student of government, was that young stranger when he arrived three months ago in this southern Maine community to become the town's first manager since it was incorporated 135 years ago.

"The day I arrived here I felt as though I had jumped into a deep lake and was trying to swim in 20 different directions," Weiss admitted, and then added, "but now I feel right at home—thanks to the hospitality here."

Weiss was administrative assistant to the Keene, N. H., city manager before he was named to the South Berwick post in April at an annual salary of $3,500, plus $500 for expenses. He was one of the 50 applicants for the job and among 12 interviewed by the seven-man board of selectmen.

The story of South Berwick's shift from an antiquated municipal administration under a three-man board of selectmen to the manager plan and a seven-man board was punctuated by frequent clashes between veteran politicians and civic-minded citizens interested in a modern type of government. The latter won the three-year tussle when South Berwick voters boosted the town-manager plan over one of its final hurdles by electing five pro-manager candidates to the board of selectmen several months ago. Two veteran office-holders, opposed to the shift in administration, resigned, and two other manager-plan supporters were named to fill the vacancies.

Figuratively speaking, the townspeople told Weiss:

"Now go ahead, son, let's see what you can do."

No longer a stranger, Town Manager Weiss has met the approval of South Berwick, and is ready to lead the community along a road of improved operation.

By this step, South Berwick joined more than 97 other Maine communities in adopting the town- and city-manager form of government. All but 14 of the cities and towns in the Pine Tree state have sanctioned city and town manager-ship during the past 10 years. Practically every community encountered the same political opposition before the taxpayers finally decided to modernize their municipal operation.

Like other managers throughout the state, Mr. Weiss accepted the challenge and enthusiastically embarked on a crusade to rid South Berwick of its archaic municipal machinery, to introduce a streamlined method of government, and — most important — to plan for the future.

City Manager Weiss claims these accomplishments since taking office:

(1) Reduction of town welfare expenses by refusing relief to those able to support themselves and transfer of other relief cases to the state.

(2) Extensive street repairs to most of the town's 60 miles of streets.

(3) Adoption of weekly worksheets to govern the duties of various municipal employees.

(4) Establishment of a weekly police school for the town's 10 part-time officers.

(5) Institution of weekly reports to the citizens as well as an invitation to attend bi-monthly meetings of the board of selectmen — formerly held behind closed doors.

But Mr. Weiss feels these accomplishments are only the groundwork for his plan to revamp South Berwick's slightly rusty municipal plant. The Town Manager says he has numerous other plans and is sure his proposals will meet the approval of both the selectmen and the townspeople.

Mr. Weiss is a native of Medford, Mass., one of seven children of a Boston shoe-firm executive, and a World War II army veteran. He attended Boston University and the University of Pennsylvania. He also has held municipal positions in Cambridge, Mass., Bethel, Vt., and Dover, N. H.

Is It Legal to Pay Convention Expenses Of Public Officials?

By JAMES A. TOBEY, Dr.P.H., LL.D.
Member of the New York Bar

USE of public funds to pay the expenses of public officials who attend meetings of professional societies and other organizations sometimes raises a nice legal problem, especially if the convention is held beyond the borders of the state. Although it is now a common practice for public officials to be present at such meetings at the expense of the taxpayer, and the propriety of such attendance is seldom questioned, the courts of last resort in several states have ruled in the past that charges of this nature are neither legitimate nor valid under existing laws.

The legal aspects of this important matter have been clarified by a recent noteworthy decision of the Kentucky Court of Appeals, but before considering this interesting case, it may be well to look at some of the precedents.

Nebraska and Mississippi Cases

More than 30 years ago, in 1917, the Supreme Court of Nebraska held that the expenses of the President of the Board of Education and the Superintendent of Schools of Omaha in attending a congress of school hygiene in Buffalo, N. Y., were not necessary and reasonable expenses incurred in the proper performance of their official duties.[1] As a result of this rather restricted and narrow legal viewpoint these two officials were forced to pay out of their own pockets a total of about $250 for a trip which undoubtedly was of value to the school system of the city which they served.

In 1925 the Supreme Court of Mississippi handed down an opinion that a county board of supervisors was not legally justified in approving and paying an expense account of $222.26 submitted by the county health officer for a journey to Washington, D. C., to attend a public-health conference.[2] This ruling was an incidental part of a much broader case, in which the State Revenue Agent had brought suit in Chancery Court to reclaim numerous funds which he alleged had been wrongfully paid out of county funds to various individuals and associations, many of which were private organizations interested in charitable enterprises.

In the lower court the Chancellor disallowed some of the claims of the State Revenue Agent, but he upheld him in his claim against the county health officer, and he also ruled that existing law in the state did not authorize the purchase and maintenance of an automobile for the county superintendent of education. Both of these matters were upheld on appeal to the State Supreme Court. In the quarter of a century which has elapsed since this decision, legislation has been broadened to authorize these necessary facilities and activities.

A General Rule of Law

It is the general rule of law that the functions and expenditures of public officials can be only those which are specifically set forth in the statutes, or may be reasonably implied from existing laws.[3] All administrative agencies are purely creatures of legislation; their activities are carried out only with funds supplied by the state and/or its political subdivisions in accordance with definite budgets which provide for definite items. These budgetary items can be changed or exceeded only with the sanction of higher authority.

The Kentucky Case

That the statutes may be interpreted and applied in a reasonable and intelligent manner in the interests of the efficiency and welfare of public officials was demonstrated in the recent opinion of the Kentucky Court of Appeals,[4] the facts of which are as follows:

The annual budget of the Louisville and Jefferson County Board of Health for the fiscal year 1946-1947 was $1,877,000. Included in this large sum was an item of $2,000 for travel, of which only $1,603.13 had been spent when one of the health department officials submitted a voucher for $37.24 for his expenses in attending the convention of the Southern Branch of the American Public Health Association at Memphis, Tenn.

This modest amount was approved by the Board and duly paid, but its payment was challenged by a resident and taxpayer of the city, who was also the county attorney. He questioned the right of the Board to reimburse one of its executives for travel to a meeting outside the state and sought by action in the Chancery Branch of the Circuit Court to enjoin the Board from doing so. The sum involved was trivial, but perhaps he thought an important point of law was involved.

The Chancellor adjudged that the Board was without authority to pay this expense, but the Court of Appeals reversed his decision. While conceding that all of the power of the Board of Health is and must be derived from the Legislature, and that the statutes now in force contain no specific authorization for such convention expenses, the higher court pointed out that the law of the state provides that the Board may expend funds for conducting research, and that it is charged with the responsibility of collection from official or other sources of such statistics and information as may be useful and necessary for the performance of its official duties.

An Enlightened Decision

These and other broad powers given to the Board, said the Court of Appeals, come very near expressly authorizing it to pay expenses of its officers and personnel in attending professional meetings such as medical conventions. Certainly, continued the Court, by necessary implication the statutes authorize such expenditures for health departments, since there is hardly any practical method whereby the desirable information can be obtained by the public-health officers except by going to such meetings.

This enlightened court further stated that it is common knowledge (except possibly in Nebraska and Mississippi) that hearing some eminent specialist lecture, engaging him in conversation thereafter, and seeing him demonstrate and put into practice his theories, is much more enlightening than reading about it in a medical journal. The Board, furthermore, was not allowing an unusual or unreasonable amount for travel—a mere $2,000 out of a budget of nearly $2,000,000, and by resolution it had limited the travel allowance of its officers to $10 a day and actual railroad fares. It had likewise required that 25% of the entire expense should be borne by the traveling official himself. All of these requirements were effective safeguards which prevented abuse of the privilege of travel outside the state limits.

These progressive legal principles may apply to health officials in Kentucky, but they do not necessarily apply

to all public officials in all jurisdictions. This same Court had previously held that existing state laws do not authorize payment of the expenses of a welfare and probation officer in attending a national conference of social workers in Atlantic City, N. J.[5] The Court differentiated this decision, which still stands, from the present one by pointing out that in the case of welfare officers there is no statute which expressly or by implication permits the fiscal court to appropriate funds for such educational purposes, and that these officers are supposed to be qualified for their duties before they are employed. On the other hand, this Court has sustained the right of a tax official to travel outside the state at its expense, since the statutes say that it shall be a duty of tax officials to "investigate matters of taxation in the state and elsewhere."[6]

Whether a public official may attend conventions as part of his official duties and at government expense depends, therefore, upon the precise wording of the statutes and the proper implications that can be drawn from them. In most states there is a constitutional provision that no law shall increase or diminish the salary or emoluments of a public officer after his election or appointment, but this restriction does not apply to such matters as travel and mileage where they are properly authorized. Incidentally, on the same day that the Kentucky Court of Appeals handed down its decision regarding payment of the travel expenses of public-health officers, it also rendered a decision to the effect that a county health officer in this state is an employee and not an officer, and thus is not prohibited by constitutional provisions from receiving a well-merited increase in pay while in office.[7]

REFERENCES

1. *Smith* v. *Holovtchiner* (1917), 101 Neb. 248, 162 N.W. 630, LRA1917E 331.
2. *Miller* v. *Tucker* (1925), 142 Miss., 146, 105, So. 774.
3. Tobey, J. A., *Public Health Law*. New York. The Commonwealth Fund. 3rd ed. 1947.
4. *Louisville and Jefferson Board of Health* v. *Steinfeld* (Ky., 1948), 215 S.W. (2d) 1011.
5. *Jefferson County, ex rel. Grauman* v. *Jefferson County Fiscal Court*, 269 Ky. 768, 108 S.W. (2d) 810.
6. *Reeves* v. *Talbot*, 289 Ky. 581, 159 S.W. (2d) 51.
7. *Nichols et al* v. *Marks et al* (Ky., 1948), 215 S.W. (2d) 1000.

Charlotte Modernizes Clearing House Of 115,000 Welfare Cases

THE Social Service Bureau of Charlotte, N. C. (population 100,000 in 1940), keeps a file of more than 115,000 recipients of welfare, health aid, and other assistance from a total of 13 municipal, semi-public, and private organizations of the city and Mecklenburg County.

The increasing number of records compelled a search for a system more efficient than that utilizing homemade wooden tub desks, which in 15 years had become dusty, wobbly, and suggestive of carelessness and waste. The character of the records called for a system meeting these five specifications:

- Efficiency resulting from simple records within easy reach of a single clerk
- Protection for confidential records against fire, and locked against casual examination by outsiders
- Capacity by means of space-economizing six-drawer files
- Storage against dust and wear for permanent records
- Appearance modern, in keeping with an efficient system

The Bureau is actually a clearing house for all the member agencies. An agency investigating a case may telephone to ascertain what is known about this case by other agencies. All the members register their current cases on standard forms so that they can call upon one another for the detailed information relating to the individuals and families registered.

The records are kept both alphabetically, irrespective of community, and geographically, alphabetically by street name followed by street number. The two sets of records are housed in Remington Rand Aristocrat steel files with drawer trays equipped with "followers" for easy handling and for locking the records when not in use. Each file bank consists of two six-drawer units with drawers 26 inches wide by 28 inches deep. The alphabetical records are on 6-by-4-inch cards. The geographical records are on 5-by-3-inch cards. The convenient arrangement is shown in the photograph in which Mrs. Beatrice B. Land, Director of the Bureau, is searching and reporting simultaneously. Faster and better service is thus furnished to the member organizations.

This photograph shows that over 100,000 social-service records are all within the reach of the Director of the Bureau, with telephone service available.

Fire-Alarm Batteries Demand Constant Attendance

THE STORAGE battery, which serves as standby power for the fire-alarm system in case the main power supply fails, may not be called on for years. Yet this expensive assurance of fire-alarm continuity must always be ready for the possible emergency.

Alarm circuits operate on direct current. To supply it in the small quantities required, a step-down transformer reduces the voltage from an a.c. power line; the lowered a.c. voltage is then rectified to d.c., and from the rectifier, direct current at the proper voltage powers the alarm systems.

With this means of supply, it is obvious that failure of the a.c. power supply, transformer, or rectifier would render the alarm system inoperative. To prevent this is the job of the storage battery. Enough current is constantly supplied to the battery to keep it fully charged. This requirement can range up to 50 milliamperes.

Voltage Requirements

All approved alarm circuits use the closed-circuit principle: breaking the circuit causes the alarm to be signaled. The usual current drain of these alarm systems is 100 milliamperes. Voltages required to maintain this current depend, of course, on the resistance in the connecting circuit; similarly, the required voltage will determine the number of cells in the battery installation. Voltages ranging from 24 to 96 are commonly encountered in the field.

In addition to the voltage required by circuit characteristics, the size and type of battery selected for the job will also be influenced by the number of hours' reserve capacity desired.

The battery and rectifier installation can be located in any dust-free location, provided some ventilation is available and not too much heat. A warm battery tends to self-discharge at an accelerated rate that not only increases the load in the power source to keep it fully charged, but tends also to shorten battery life.

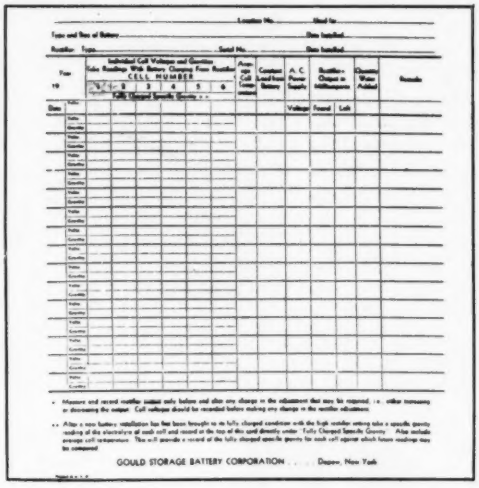
Individual cell voltages should be read and the readings recorded every three months. If one or more cells are more than 0.05 volts below the average voltage of the battery, the specific gravities of all cells should be noted for the record and the battery given an equalizing charge (an additional charge to bring the low-reading cell or cells up to average). This is usually accomplished by charging the battery until there is no increase in the specific gravity of the cell in question over a three-hour period.

If cell voltages are uniform, specific-gravity readings need not be taken and recorded more than once a year.

The addition of water to the battery cells has a very important bearing on their performance. Installations operating under well-regulated conditions do not need water more than semi-annually and this period may even extend to a year before electrolyte levels drop below the low-level mark. When adding water, the high-level mark should not be passed, as subsequent gassing when fully charged may cause cell tops to become wet. This level should always be maintained between the high- and low-level mark on the jars.

If electrolyte levels are allowed to fall below the tops of the plates all such exposed areas become inactive, putting excessive loads on the submerged portions. Loss of battery life results. Furthermore, exposed portions of the wood separators tend to dry out and shrink with the result that internal resistance increases and voltage during discharge suffers. To be on the safe

(*Continued on page* 159)



GOULD STORAGE BATTERY CORPORATION . . . . Depew, New York

Battery record card. Regular voltage and gravity checks are recorded on this card and serve as a life record of the battery's performance.

Installation of a typical fire-alarm battery. Batteries are Gould 20-ampere-hour cells. Note accessibility of the units.

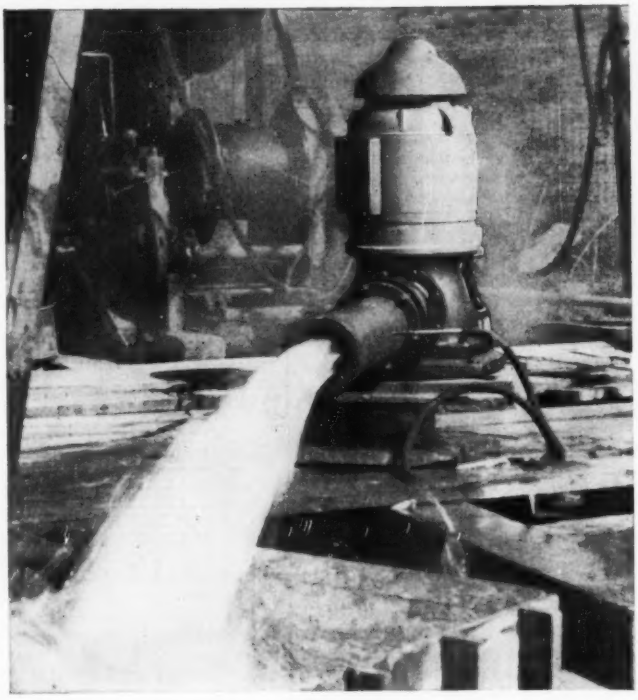
WHAT'S TO BE GAINED BY MAKING COMPARISONS

THERE IS NO BETTER YARDSTICK

COMPARISON is a fair yardstick in buying any well water system. That is why Layne welcomes and urges comparison with any and all other systems now being built. Comparisons quickly reveal the superiority of Layne designing as reflected by higher overall efficiency, better materials and low upkeep cost, plus extra rugged construction insuring longer life.

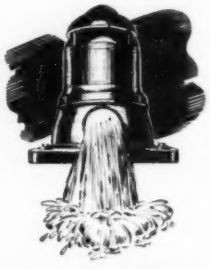
In addition there is the all important matter of proper installation. Leading engineers of the country readily admit that Layne installation methods are better. They provide well water systems with increased capacity and keep operation cost surprisingly low.

The choice of a Layne Well Water System is a wise and profitable selection. Thousands of big, medium and small installations are giving economical and satisfactory service today and will continue to do so for many years.



Vertical Turbine PUMPS

—are available in sizes from 40 to 16,000 gallons per minute and may be used in already constructed wells, for irrigation, pressure boosting, fire control or transfer services. Write for pump catalog.



BUILT TO ADEQUATELY FULFILL YOUR WATER SUPPLY NEEDS

Each Layne Well Water System is designed and installed to supply requirements without overburdening. Usually there is a surplus capacity to care for future increased demands or unforeseen emergencies. Always there is available on short notice the services of trained and properly equipped Layne personnel for any contingency.

For catalogs, bulletins or further information, address the general offices.

LAYNE

LAYNE & BOWLER, INC.
GENERAL OFFICES, MEMPHIS 8, TENN.

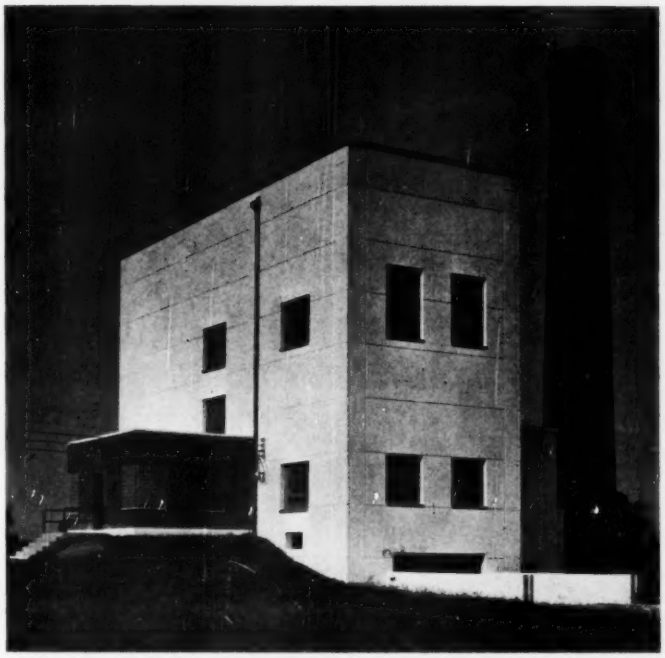
WELL WATER SYSTEMS

ASSOCIATED COMPANIES—Layne-Arkansas Co., Stuttgart, Ark. ★ Layne-Atlantic Co., Norfolk, Va. ★ Layne-Central Co., Memphis, Tenn. ★ Layne-Northern Co., Mishawaka, Ind. ★ Layne-Louisiana Co., Lake Charles, La. ★ Louisiana Well Co., Monroe, La. ★ Layne-New York Co., New York City ★ Layne-Northwest Co., Milwaukee, Wis. ★ Layne-Ohio Co., Columbus, Ohio ★ Layne-Pacific, Inc., Seattle, Wash. ★ The Layne-Texas Co. Ltd., Houston, Tex. ★ Layne-Western Co., Kansas City, Mo. ★ Layne Minnesota Co., Minneapolis, Minn. ★ International Water Corp., Pittsburgh, Pa. ★ International Water Supply, Ltd., London, Ont. ★ Layne-Hispano Americana, S.A., Mexico, D. F. ★ General Filter Company, Ames, Iowa.

Marrero Incinerator—A Shining Example

Plant is built in New Orleans suburb with an eye for future growth

By CARL SCHNEIDER
Consulting Engineer
New Orleans, La.



Clean architectural lines combined with carefully planned engineering details are incorporated in the Jefferson Parish incinerator, which stands in Marrero.

AFTER eight months of operation, the Marrero incincerator plant serving Jefferson Parish, La., looks much better now than the day it was completed. From the exterior this is readily apparent in the well-cropped lawn and flowers in bloom, improved road surfacing, and generally clean appearance. It is just as notable inside the building. Not even a lone spider web is on the wall. Paint has been retouched from time to time, the floors flushed regularly and the equipment maintained in tip-top shape.

Nor does one see cluttering the place the assortment of salvaged junk usually to be found in incinerators. To this, one exception can be made. On entering the office one sees a large illuminated electric clock salvaged—a brewery advertisement. It "runs perfect," the operators will advise you.

Serves Three Towns

The plant was constructed in 1947-48, to serve the needs of three unincorporated towns—Harvey, Marrero and Estell—in Jefferson Parish, adjoining New Orleans. Present population is estimated at 33,000. Much industry is located in the area, and the population has had a steady upward trend for six years or more. Hence, in the design for the plant special consideration was given to anticipated future growth. Concisely expressed, the plant capacity can be readily doubled for 40% or less of original cost.

This ease of expansion is made practicable by three principal features: a foundation designed to carry the larger chimney; an expansion chamber which can be enlarged to serve as a combustion chamber for two furnaces; and a combustion chamber which can be easily converted into another furnace unit. The furnace is of the Nichols Monohearth type, 12 feet in outside diameter.

There are several distinctive features in the exterior of the plant: its height and floor level with respect to grade; architectural appearance, and small proportion of wall area in glass.

The basement, or ash floor, is 3½ feet below natural grade. A ramp to the basement allows trucks to enter for removal of ashes and dust from both furnace and combustion chamber. The office and operating floor are on the same level, 13 feet above the basement. The charging floor is 19 feet above the operating floor. The crane rail is 16 feet above the charging floor, and it is 22 feet from the charging floor to the underside of roof girders. The plant is not cramped in any respect for head room.

The main building, expansion chamber, and flues are constructed of reinforced concrete; the office has red face brick walls, with corners in glass block. The concrete walls of the main building are 12 inches thick, with V-grooves about 6 feet apart horizontally and with two such grooves vertically at each column. Concrete surfaces on the exterior are painted cream color. Building walls have very little trim—red face-brick window sills and parapet-cap.

The photograph illustrates the small amount of window space. Yet the interior of the building does not lack ample light and ventilation. Moreover, the thick walls and small window area make a cool place to work in the summer.

The building was constructed by O'Connor-Oakes Construction Company, of Gretna, La.; the furnaces and traveling crane were installed by the Nichols Engineering and Research Corporation, of New York; the refractory-lined, red radial brick chimney, 5½ by 80 feet, was constructed by the International Chimney Company, of Buffalo, N. Y. Total cost of the plant, including engineering, was approximately $210,000; the capacity of the plant is 90 tons in 24 hours.

Members of the Board of Supervisors of Garbage District No. 2, Jefferson Parish, are: I. W. Vincent, Chairman; W. A. Falcon, Secretary; and V. Capdeville. Alvin E. Hotard, Engineer for Jefferson Parish, and the writer were consulting engineers for the project. Excellent maintenance and operation of the plant are largely attributable to the superintendent of garbage and disposal, Joseph Gonzales.

NEW STREET LIGHTS

4 Times the light at ¼ the Cost!

Now, all the economy, all of the lighting advantages of fluorescents when applied to street lighting give double the usable light of a mercury lamp and four times the usable light of an incandescent lamp!

NEW Super White Way FOR BUSINESS DISTRICTS

—"RADIANT" Light of Post Lites fans out horizontally at the level of use! Compare this with old-type down-lighting hung so high up that up to 60% of light is wasted. Now, you can have *all* your light where you want it—*at the level of use.*

"Radiant" light is true "white-way" light—there is no greenish or amberish color distortion. True "white" light compliments window display colors, clothes and faces and people like it.

Easiest Lights to Install

NO LIGHT-POSTS NEEDED

Post-Lites, the new outdoor all-weather fluorescents, require only standard 2" pipe set in concrete and connect to 110V-120V service wire. The heavy investment in costly light posts is saved. Changeover is extremely simple.

Lamp-Type Models for Converting Old Light Posts

Attractive Lamp-Type Models work miracles with any type of old light post . . . metal, concrete or wood posts regardless of shape or diameter, can be modernized with single Lites or in clusters of 2, 3, or 4 Lites. See photo at right.

Post-Lite engineering is backed by 38 years of commercial lighting experience. The units have been in successful use under 40° below zero temperatures and have withstood every type of storm including tornado.

FREE POST-LITE DEMONSTRATION ON YOUR STREETS at no cost to you

For practical, intelligent planning for your own street and town layout, we bring in actual Post-Lites on movable bases to light up your entire street and tailor your light to your needs and purse. This complete white-way demonstration leaves absolutely nothing to chance, nothing to imagination, guesswork or theories. Write, phone or wire for demonstration details.

Get Full Information. Send for the "Post-Lite Street-Lighting Bulletin". It covers complete information, technical details, etc.

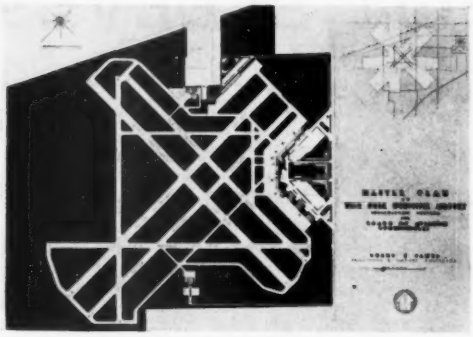
ENGINEERS **W. H. Long Company** MANUFACTURERS

Established 1911
More than 38 Years of Guaranteed Customer Satisfaction
108-114 WEST ILLINOIS STREET **CHICAGO 10, ILLINOIS**

By P. H. ROETTGER
Superintendent
Weir Cook Municipal Airport

Weir Cook Airport Gets Out of the Red

Bi-partisan Board of Aviation Commissioners put the Indianapolis airport on a paying basis



The Weir Cook master plan.

WEIR Cook Municipal Airport, Indianapolis, Ind., is owned by the City of Indianapolis, and operated by a bi-partisan Board of Aviation Commissioners by authority of a uniform state law governing aviation. This state law provides that the Board of Aviation Commissioners shall have full and exclusive power on behalf of the municipality to operate and control the airport. All proceeds derived from such operation are deposited in the Airport General Fund, and are to be used for aviation purposes only. Prior to the establishment of this uniform aviation law, airports throughout Indiana were usually operated by unrelated city departments with little or no interest in aviation.

Early in 1946, sound economic policies were established and extensive improvements begun. The need of additional terminal space was immediately recognized, along with the inadequacy of other facilities. Immediate correction of this deficiency was made during the year 1946. The past three years have seen the airport grow from the position of 40th place to the position within the first ten in the United States today. The airport now is popular for good operation, courtesy, service, cleanliness, and an excellent safety record.

Municipal airports were not originally designed for the purpose of making a profit, but of providing a facility available to the tax-paying public, in the same category as public parks and golf courses. We believe, however, that if an airport can be placed in a position of not only being self-sufficient, but showing a small margin of profit, it is to be commended. Weir Cook Airport's financial record for the years 1946, 1947, and 1948 deserves special recognition because it gives promise that the airport, which has become self-sustaining, will finance its own improvement program by the issuance of revenue bonds in lieu of tax bonds.

From the airport's formal opening in 1931 until 1946, it operated at a deficit, and was supported by tax revenues. The highest gross income for any year prior to 1946 was in 1944, when it grossed $60,000. When the new economic system was put into effect, under control of the Board of Aviation Commissioners, the gross income in 1946 jumped to $103,000, of which $32,000 was net operating profit. In 1947 the gross income increased to $113,000, of which $47,000 was net operating profit. In 1948 the gross income was $114,000, with $44,000 net operating profit.

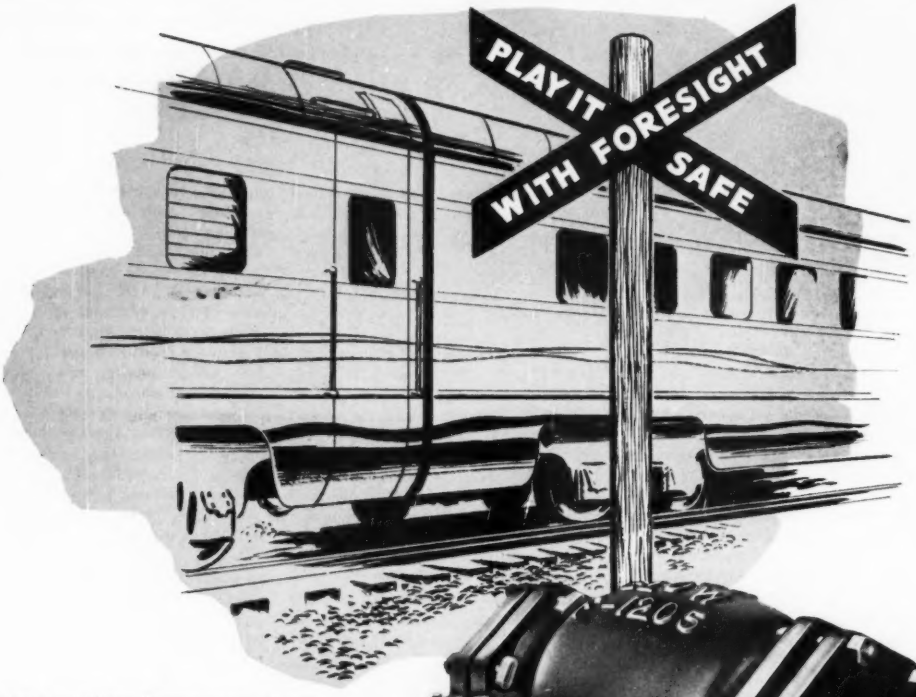
Only a small portion of the increase is attributable to increased airline schedules. The major portion was derived from opening the airport to additional fixed-base operators, flight schools, and non-aviation sources of revenue. Efforts are constantly being made to increase non-aviation sources of revenue. Further increases in revenues are being retarded by adverse financial arrangements growing out of long-term contracts drawn up in preceeding years. The management of the airport is making every effort to renegotiate these long-term contracts to the advantage of the airport; however, most of these contracts must run their entire term before they can be revised. Present financial planning indicates that within the next five years, gross revenues at this airport should grow to approximately $250,000 annually, of which $60,000 to $80,000 should be net operating profit. This method of financial operation should provide a sufficient sinking fund from the airport proceeds for future replacement of runways, buildings, and related facilities.

The airport is participating in the Federal Aid Program under the Aeronautics Act, and has currently under way a $500,000 expansion program. It is proposed that this program will be followed by a $750,000 program of airport development. The present program covers the building of a master drainage system, re-building the main traffic-control tower, which is to be the most modern and complete in the United States, and the expansion of aircraft parking ramps. The suceeding program will be used to remodel and build additions to the existing Terminal Building, constructing a large aircraft-maintenance hangar, and the construction of a new east-west taxi strip.

The terminal building. The temporary addition was supplied in 1946 to serve until future expansions could be completed.

Where the pressure's on – reinforce and protect all joints of cast iron pipe with

CLOW BELL SPLIT SLEEVES

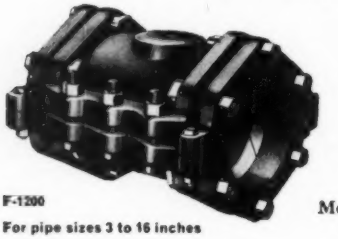


Today Municipal Water Departments all over the country realize the value of playing it safe with CLOW MECHANICAL JOINT BELL SPLIT SLEEVES. In fact, the use for the F-1205 Bell Split Sleeves has become "standard practice" for reinforcing and safeguarding the joints of cast iron pipe where pipe lines pass under railroad tracks or highway truck routes, through marshland or under water, and any locations of piping not easily accessible in case of emergency.

F-1205
For pipe sizes 3 to 16 inches

No Lead . . . No Jute . . . No Calking

Write for completely illustrated descriptive circular

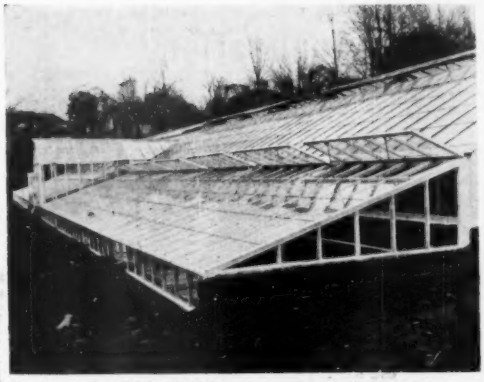


F-1200
For pipe sizes 3 to 16 inches

JAMES B. CLOW & SONS
201-299 North Talman Avenue • Chicago 80, Illinois
and their National Cast Iron Pipe Division, Birmingham, Ala.; subsidiaries Eddy Valve Co., Waterford, N. Y.; Iowa Valve Co., Oskaloosa, Ia.

Make repairs to pipe barrel with F-1200 Clow Mechanical Joint Straight Split Sleeves. Sizes 12-inch and smaller will repair length-wise breaks up to 8 inches; sizes 14-inch and 16-inch, up to 17 inches.

Maplewood's Community Greenhouse



View of the 10-by-112-foot greenhouse before its completion. Maplewood municipal greenhouse is in the rear.

A community-civic project in Maplewood, N. J., furnishes adult recreation, makes friends, and also beautifies properties

A UNIQUE and highly successful community-civic project is paying rich dividends, both material and intangible, in Maplewood, N. J. (estimated population, 29,000), through the operation of a community greenhouse constructed by the Maplewood Garden Club and donated to the municipality.

Almost every gardener has the desire to own a greenhouse, even though a small one, but few can afford it. Maplewood, a community of individual attractive homes, has been made conscious of the importance of good landscaping through advice and assistance on property and garden improvements offered home owners by Richard Walter, Township Park Superintendent, an expert horticulturist. The town's own Municipal Greenhouse has been a great aid in beautifying public properties at low cost.

Under the leadership of Joseph P. Skirdlant, president, the Garden Club members decided to undertake a campaign for funds for a greenhouse of their own which would be built as a lean-to addition to the municipal greenhouse in the rear of the municipal building. The Town Council granted permission for this use of municipal property, and plans and specifications were approved by the building inspector.

Through loans and donations, $2,500 was raised, and work on the 10-by-112-foot greenhouse started in August 1948. Members of the club, including lawyers, doctors, and businessmen, donated more than 1,000 man-hours of volunteer labor. Under the supervision of Adrian Hubers, chairman of the Greenhouse Management Committee, the greenhouse was completed and put into commission in November 1948. Already more than 40% of the $1,500 in loans has been paid off through plant sales, card parties and cake sales.

Since the greenhouse project was started, the Garden Club's membership has grown to 205 from a membership of 40 three years ago when the new expansion policy was begun. Now there is a waiting list to get space in the greenhouse, as only 72 gardeners can be accommodated at a time, each person being allotted 9 square feet of space for the growing of plants in flats and pots. The cost of the greenhouse service for members is $3 per year. This includes heat, light, and soil. Members supply their own seeds and other plant materials, tools, and equipment.

A garden center for information and publications on gardening is now also maintained in the greenhouse and experienced members are on hand to answer questions. During the three weekly night sessions the greenhouse hums with activity, and contributes a good deal to neighborliness and good feeling in the community and aiding in its beautification.

Among other improvement activities in which the Garden Club has engaged are a conservation program and a town-improvement survey of local industrial plants on the edge of the municipality. Citations have been awarded to those industries that have improved their ground maintenance and landscape plantings.

Businessmen, salesmen, lawyers, and youngsters pitched in to construct the greenhouse. At the far right is Richard Walter, Township Park Superintendent.

Holophane STREET LIGHTING REFRACTORS

are made for...All Traffic Conditions ...All Mounting Applications ...All Types of Thoroughfares...

TRAFFIC ARTERIES

BUSINESS STREETS

RESIDENTIAL STREETS

STANDARDIZE on REFRACTORS

Holophane Refractors provide greater visibility for every dollar spent. Their extraordinary light control puts the light where it is most needed on the street . . . building up pavement brightness, with general uniformity of distribution. The result: better street lighting in terms of less night accidents and deaths, improved safety conditions and greater community pride.

Holophane Trade Mark

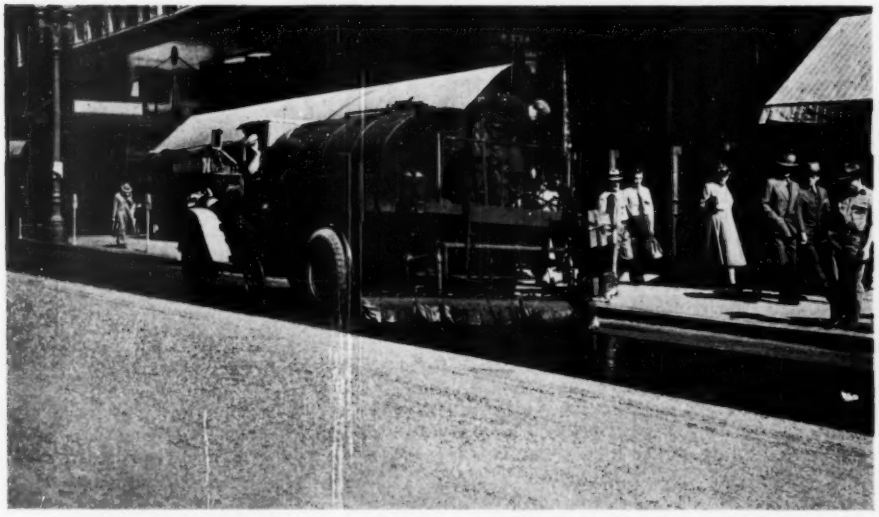
HOLOPHANE COMPANY, INC.

Lighting Authorities Since 1898 · STREET LIGHTING DEPARTMENT, NEWARK, OHIO

THE HOLOPHANE COMPANY, LTD., THE QUEENSWAY, TORONTO 14, ONTARIO

How Minneapolis Maintains Dirt Streets

STREETS SERVICEABLE THE YEAR ROUND AT LOW COST



A maintenance crew applies road oil with a Roseo distributor. The city runs six of these units.

By ELMER H. LUND
Superintendent of Street Maintenance
Minneapolis, Minn.

IN MINNEAPOLIS we have a large mileage of dirt streets, which we maintain by oiling, using the blotter method. The procedure we use makes it possible to keep them in good shape all year, and avoids the annual spring break-up that we used to experience.

Our program entails first scarifying the roadway by using a heavy-duty patrol grader or a 60-hp crawler tractor with a combination heavy-duty patrol grader and scarifier. The teeth are set to a depth of 4 to 6 inches. Next, the material is thoroughly bladed, starting in the center of the roadway, moving it evenly to windrows at the gutter line on both sides of the street, in order to break up all the lumps and produce a smooth roadbed and prepare the street for oiling.

We then reverse the operation and level the windrows toward the center of the street. After this operation, sufficient loose material to cover the oil is again moved into the gutter and left in a windrow.

Oiling

The next operation is to apply the oil. We have six city-owned distributors to make the application. We find that the best results are obtained if the work is done during warm weather. The average amount of oil used is about 1/4-gallon per square yard on a street that has not been oiled previously, and about 1/7-gallon per square yard on a street that has had previous oiling. The oil is applied to the entire roadway between the windrows on each side of the street. After it has been applied, a pneumatic-tired patrol grader is used to move the dirt from the windrows at the curb toward the center of the street to cover the oil, leaving another windrow nearer the center of the roadway on the first round. On the second round the patrol grader picks up the windrow from the previous round and feathers it out to the center of the street, thus covering all the exposed oil.

When the oil has been covered, a planer attached either to a truck or to a small tractor is used to rake any surface rock into the gutter, leaving the surface of the street very smooth. The gutters are then cleaned by a hand crew, and when finished the shoulders are often given a light application of oil about 5 feet wide, starting at the gutter line. This application, however, is not covered. These streets are not rolled, but do become well compacted as a result of traffic over them.

The number of applications and methods used depends upon traffic and the conditions stated above. On streets where there is a sufficient amount of oil from former applications, if additional heavy applications of oil were made, there would be a tendency to cause the streets to wave. On these streets only a very light application of oil is needed. The heavily traveled streets are worked about once a year, while all other streets require attention only once every two years.

The streets that are not worked each year are cleaned and all holes are patched with a street mix. A light seal coat of road oil is applied to these streets, using about 1/20-gallon to the square yard. We also use a coarse, dry sand over the streets that are oiled, consuming about 20 tons of sand to the mile.

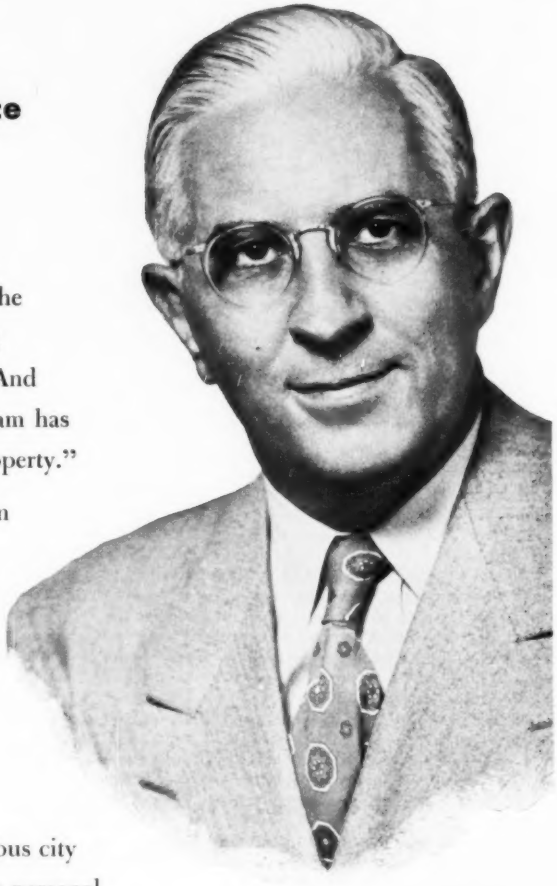
Results

On the 630 miles of dirt streets on which we have been using the foregoing treatment, the oil mat averages about 4 inches in depth.

For a number of years we used a heavy Mexican oil having a 60% asphalt content. For the last six years, however, we have had very satisfactory results with a heavy domestic oil having about the same asphalt content. The original soil of our streets is generally sand or gravel with a small proportion of clay or loam.

"Our investment in *Modern Street Lighting* pays real dividends!"

Says Mayor **Burton W. Chace**
of Long Beach, Calif.



"LONG BEACH is a pioneer city in the use of adequate street lighting and the continuous modernization of older lighting systems," says Mayor Burton W. Chace. "And through the years our street lighting program has paid real dividends in saving lives and property."

"Good street lighting is an investment in public safety, civic growth and better living," continues Mayor Chace. "As well as protecting lives and property, it increases business, encourages new retail and residential development, improves the city's appearance and is a great boost to civic pride."

Mayor Chace is another alert, conscientious city official who regards community welfare as a personal responsibility. And through the installation of modern street lighting, cities all over America are safeguarding the lives and interests of their townspeople.

FOR MORE FACTS

Write for your free copy of "A Planned Program for Better Street Lighting."

The Street and Traffic Safety Lighting Bureau, 155 East 44th St., New York 17, N. Y.

DDT No Polio Cure

SPRAYING communities with DDT powder has no appreciable effect upon the number of polio cases reported in the sprayed areas, according to the National Foundation for Infantile Paralysis.

According to Dr. Harry A. Weaver, Director of Research of the National Foundation, there is no scientific evidence to indicate that flies play a prominent role in the transmission of polio to human beings, although it has been demonstrated that the polio virus may be carried by some flies, especially the blow-fly species.

The role of the fly in transmitting polio to human beings has been under scientific study for some time. A conference on this subject by the leading epidemiologists in this country concluded, Dr. Weaver said, with the unequivocal statement that, "on the basis of present scientific evidence, there is no justification to initiate emergency community insect control in the hope of influencing an epidemic of poliomyelitis."

To Combat Hysteria

Questioned about the value of DDT spraying as a means of quieting community hysteria if polio cases increased locally, Dr. Weaver said:

"In one locality, with which I am familiar, the community was sprayed with DDT with the announced intention of aborting an epidemic of poliomyelitis. It so happened that we had obtained a fly count from this community on the day preceding this spraying. We obtained another fly count on the day following the spraying. The number of flies in the community was actually higher on the day following the spraying than it was on the day preceding.

"While I cannot prove the following point, it seems more than possible that the number of flies increased because the inhabitants of the community, thinking that polio could be controlled by the insectide, relaxed their efforts to prevent flies from coming into contact with fly attractants."

Many epidemiologists, while agreeing that polio epidemics cannot be halted by spraying a community with DDT, have wondered whether epidemics might be prevented if communities instituted and maintained year-round insect-control programs. Citing the experience of Hidalgo County, Texas, which suffered severe outbreaks last summer, Dr. Weaver explained that the epidemic centered around the region where the Communicable Disease Center and National Institute of Health of the United States Public Health Service had for years been conducting an experiment on the role of flies in transmission of dysentery and diarrhea.

"The 1948 polio outbreaks there afforded a real opportunity to see whether or not the controlled areas experienced a marked reduction in the amount of poliomyelitis," Dr. Weaver stated. "While these studies are as yet incomplete, and only tentative conclusions can be drawn, it seems that there will be no appreciable reduction in the amount of polio cases in those areas in which flies were controlled, as compared to those areas in which no control was exercised."

How to Keep Sewage-Plant Equipment Young

TO KEEP the cost of sewage-plant maintenance low, a thorough job of protective painting is essential. To accomplish this, the Koppers Company, of Pittsburgh, Pa., has recently provided advice that will serve these particular needs.

Settling tanks and their sludge-removal mechanisms are an important consideration in all treatment plants. These require special protection about 1½ feet above and below the water line. It is at this point that the tank is alternately wet and dry, and consequently where the greatest deterioration occurs.

If the tanks are constructed of concrete, the Koppers Company recommends a heavy-duty cold-applied plasticized coal-tar pitch coating. This coating will resist sewage wastes that rise to the surface. If the sewage contains any quantity of packing house or dairy wastes, a vinylite resin-base paint may be substituted for the coal-tar coating.

The sludge-removal equipment requires special attention, since it generally has to move and operate in the sewage. When giving these a protective paint coat, the first important step is to remove all sludge and scale deposits by wire-brushing or sand or grit blasting. When the metal has been brought to a bright finish, apply a chemical-inhibiting acid wash containing phosphoric acid. This gives the metal a phosphate film, isolating the metal from the primer applied later. It also etches the metal slightly, thereby giving better adhesion for the primer. While phosphoric acid is not dangerous, one should nevertheless wear goggles and gloves when applying it to avoid irritation.

When the surfaces are dry, a coal-tar primer should be applied and covered with a double hand-brushed coat of a plasticized coal-tar pitch enamel, which is applied last.

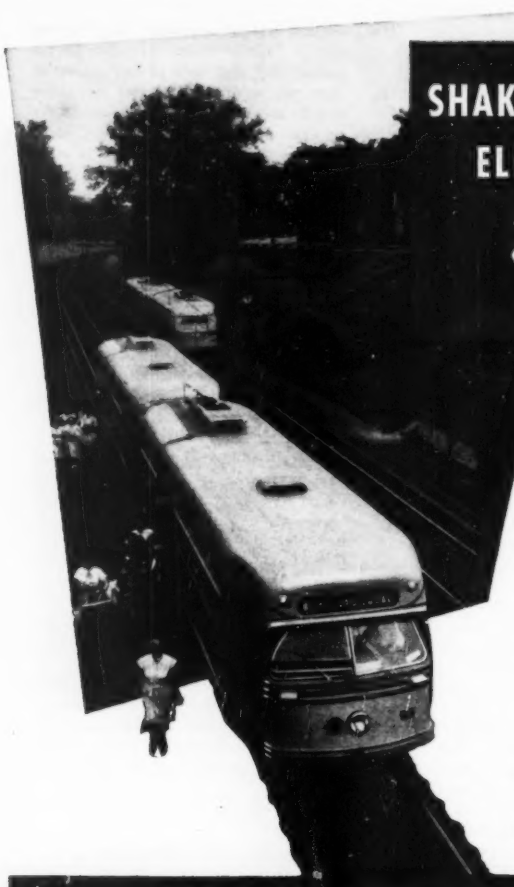
If the plant uses steel digesters, the walls should be protected against possible corrosion from the sulphides in the digester gas. This can be accomplished by applying one coat of a coal-tar primer, followed by a double hand-brushed coat of coal-tar pitch enamel.

If the digesters are constructed of concrete, protection can be effected with several heavy coats of a plasticized coal-tar cold-applied coating. Sludge, like water, has a tendency to leach out the soluble lime in concrete, thus encouraging the absorption of moisture as the surface becomes more porous.

To protect floating covers, several coats of the same plasticized coal-tar coating used for the concrete sidewalls may be employed. If a color is desired, a high-grade red-lead zinc chromate rust-inhibitive primer should be applied, followed by a coating of a chlorinated rubber-base product in the color desired.

More Trash Baskets For Allentown

Trash containers chained to boulevard light standards in the business district of Allentown, Pa. Eighteen of these 34-inch-high containers, fabricated by Norwich Wire Works, of Norwich, N. Y., have been installed with chain and lock. They are emptied once a day by the Bureau of Street Cleaning, of which Joseph A. Anderson is Superintendent.



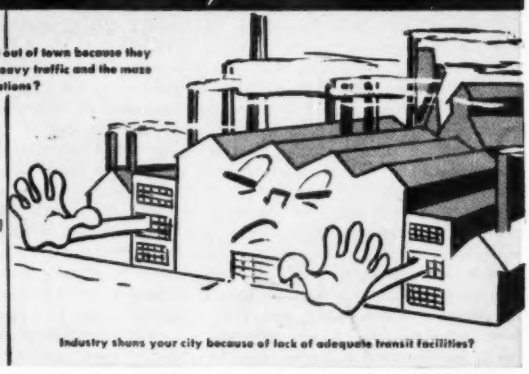
SHAKER HEIGHTS RAPID TRANSIT ELIMINATES THE NEED FOR *Seven* FOUR-LANE HIGHWAYS

These sleek all-electric high-speed PCC cars carry 20,000 riders a day between Shaker Heights and Cleveland. This two-track line is capable of doing the job of seven four-lane highways. This system is so well planned that Shaker Heights was developed around the transit system! In 1948, the Shaker Heights Rapid Transit System, managed by Mr. Paul K. Jones, added 25 of these electric streamliners to the system. Mr. Jones says, "These new cars enable us to give faster service than ever before . . . Furthermore, these cars provide clean, comfortable rides. Our service is helping materially in the aleviation of the parking problem in downtown Cleveland."

Here is an example of how effective mass transportation meets the needs of a modern city.

ARE THESE CONDITIONS TRUE IN *Your* CITY?

Customers shop out of town because they can't face the heavy traffic and the maze of traffic regulations?



Industry shuns your city because of lack of adequate transit facilities?

If your city is suffering from blight conditions and traffic congestion, effective mass transportation may be the answer. The quiet and odorless comfort of electric vehicles—trolley coaches, PCC cars and rapid transit cars—attract riders who leave cars at home. For the trunk lines electrics cost the least to operate. Write us. Let us help with your planning problems. Apparatus Department, General Electric Company, Schenectady, N. Y.

GENERAL ELECTRIC

Vancouver's Voluntary Inspections Average Ten Minutes Each

That's why semi-annual motor-vehicle tests are acceptable to the Vancouver public and how defective vehicles are found in only a tenth as many of the accidents as formerly

THE fact that defective motor vehicles are reported in only a fraction of 1% of traffic accidents in Vancouver, B. C., against 11% in non-inspection areas, is less important to American authorities and motorists than how this was brought about.

THE AMERICAN CITY has never liked the term "compulsory motor-vehicle inspection." Ten years ago this magazine accepted the principle of periodic inspection of motor vehicles and advocated educating the public to its public benefits. Unfortunately the idea was grabbed up and pushed without the considerations which Americans insist upon if they are expected to cooperate. The inspections were put on a state level and have never been popular.

When THE AMERICAN CITY was informed that the City of Vancouver offered the best example of successful inspection, H. S. Gray, Chief Inspector of Motor Vehicles, was asked to send the facts. The big point he made was that "the inspection program was presented in a manner which is acceptable to the motoring public, every effort being directed towards giving the owner prompt attention. There is no doubt that lack of public acceptance, occasioned by waiting lines of vehicles, has caused the failure of other inspection programs elsewhere."

The vitality of the Vancouver program is evidenced by the feature spread story in *The Daily Colonist* of Victoria, British Columbia's capital, ten years after the establishment of the Vancouver motor-vehicle inspection station on March 6, 1939. This story started: "Last year in Vancouver less than one car in a hundred involved in an accident was found defective. Victoria had 15 times as many."

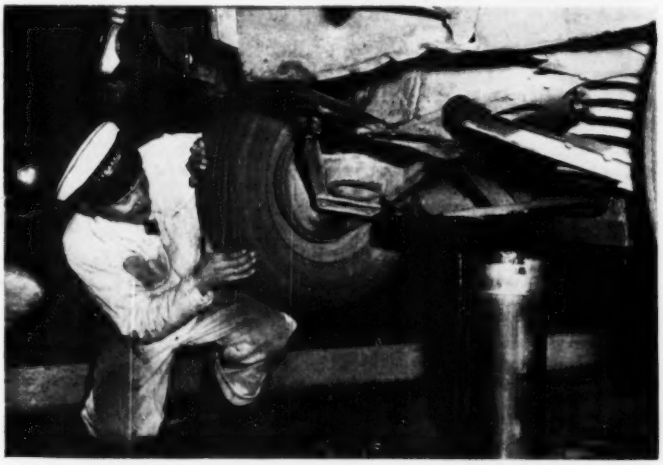
The Tests

All vehicles using the city streets are called in twice a year. During the first half of 1949, some 63,000 vehicles were tested by 16 white-overalled inspectors working on three passenger-car lanes and one truck lane. The flow of cars is controlled to 700 a day. Defects must be remedied within seven days. When passed, the driver receives a dated approval sticker good for six months.

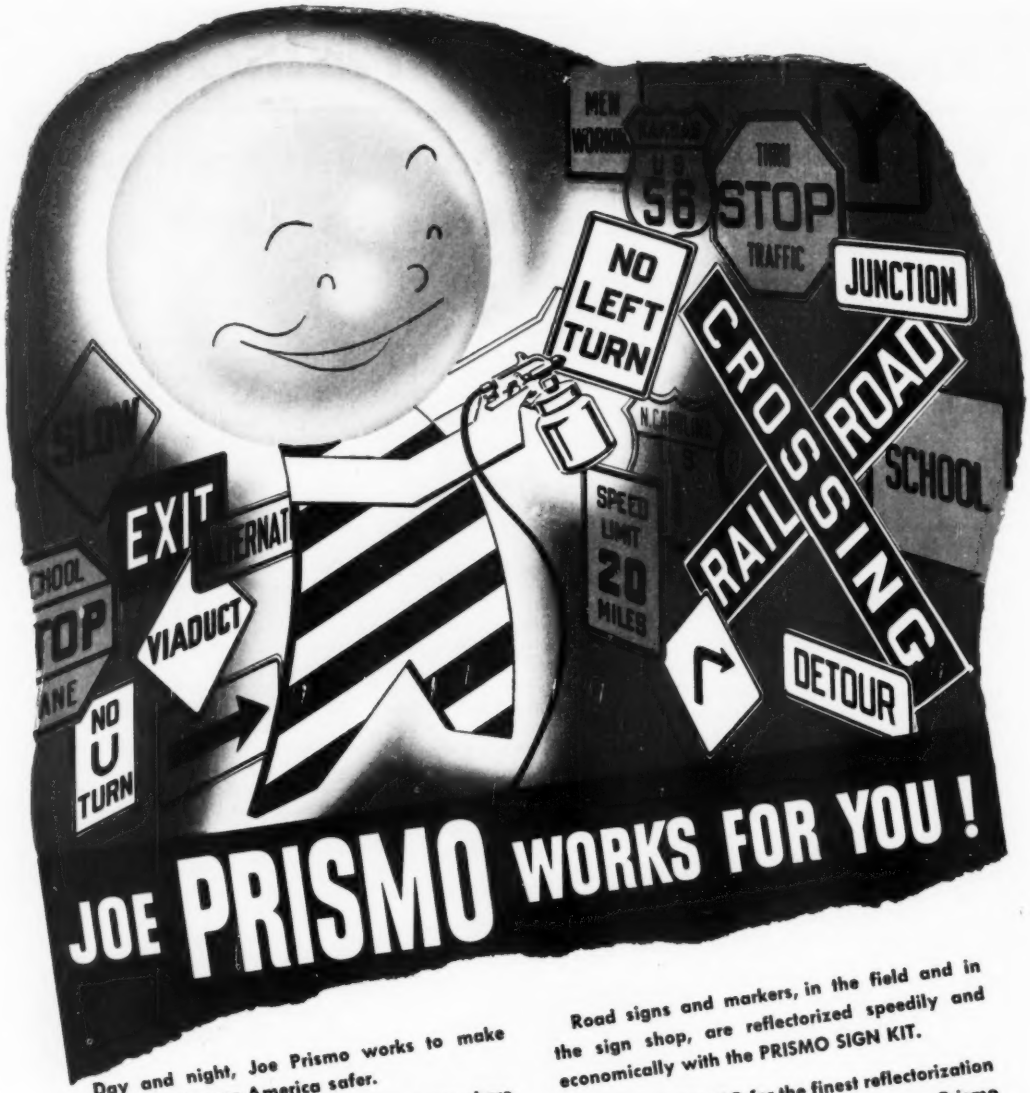
The principal tests, all made with equipment supplied by Bear Manufacturing Company of Rock Island, Ill., are for headlights, wheel alignment, steering, and brakes. Lights cause most rejections, and the tests cover rear lights as well as the elevation and focusing of headlights. The Bear device checks vertical and lateral aim and measures candlepower. Poor wheel alignment is a principal cause of steering troubles and excessive tire wear and is the fourth reason for rejections. The tester instantly measures side drag and scuffing. The steering mechanism, third most likely defect, is got at by quickly lifting the front end of the vehicle. The fourth and highly important check is of the brakes on all four wheels. Brake trouble is the second on the list of major defects. The tester, in one application of the brakes, registers on a dial the braking energy and equalization of foot and emergency brakes.

When Vancouver's City Council adopted the plan, it transferred Harry Gray from the Police Department to the testing station and made him Chief Inspector under the City Council, not the Police Commission. Says Mr. Gray: "We started out with the idea that we had to sell this thing in order to get public cooperation. If only 10% of the people don't cooperate it won't work. Making it work means you have to give service, and that means no line-ups and no waiting. If you have line-ups, if you keep doctors, mechanics, and businessmen waiting, they raise a row and that means the scheme will flop, as it has flopped elsewhere, because of high cost and public disapproval."

The Victoria reporter questioned drivers at random as they moved through the station, receiving such comments as these: "It's an independent check, and I can go to the garage knowing exactly what is wrong." "It's the cheapest form of insurance you can get." "The way traffic is these days it's nice to know your car is O.K."



Steering mechanism and tires are checked at this point in the testing program.



JOE PRISMO WORKS FOR YOU!

Day and night, Joe Prismo works to make highways all over America safer.

You'll see Joe Prismo at work almost anywhere in America because leading safety engineers have recognized Prismo's obvious superiority in the field of reflection.

Test after test proved the PRISMO LIFE-LINE THE LONGEST LASTING CENTER LINE ON ANY HIGH-WAY. This, plus Prismo's ease of application, initial low cost, and "know how" makes Prismo your budget's best buy.

Road signs and markers, in the field and in the sign shop, are reflectorized speedily and economically with the PRISMO SIGN KIT.

LOOK TO PRISMO for the finest reflectorization methods known to modern science. Prismo research never stops. As a result, you get the best in reflective coating for less every time.

Write today for fully informative bulletins explaining Prismo methods and applications. No obligation, of course.

The SPHERE of SAFETY

PRISMO SAFETY CORPORATION

Huntingdon, Penna.

Miami Signalizes Some Tough Spots

Left: Before installing channelization and signals, Five Points was an area of confusion. The huge area of the intersection left much to the decision of the individual driver. Right: Same location after installation of islands and signals showed drivers when, where, and how to proceed.

By EARL J. REEDER
Director of Traffic & Transportation
Miami, Fla.

MIAMI'S division of Traffic and Transportation has just completed the signalization of the sixth of a group of complicated problem locations. Some are large irregular areas with five or six entrances, one has to be tied in with bridge operation, and two are synchronized with railroad operation. All are on major thoroughfares.

Problem 1

The first of the group to be signalized was Five Points, where Coral Way, 22nd Street, 3rd Avenue, and 12th Avenue intersect with the two major flows of traffic turning at an angle of about 45 degrees between Coral Way and 3rd Avenue. Three concrete channelization islands were installed, properly shaped for definition of the different traffic lanes and for preventing many of the promiscuous movements that had been causes of congestion and accidents in an intersection that was nearly 400 feet across in one direction.

The signals are operated on three phases. One phase controls east and west-bound traffic on Coral Way and 22nd Street (22nd Street is the extension of Coral Way east of the intersection). Another controls traffic from the northeast and southwest on Third Avenue. The third controls traffic southbound on 12th Avenue, which terminates at this intersection. The signals are post-mounted and are located on the islands.

The general movement of traffic has been substantially improved at this intersection. Pedestrians have much easier and safer crossing. The interruption of traffic by the signals furnishes better opportunities for them to cross, and the channelization organizes the vehicle movements in a much more definite way.

Problem 2

The next installation in this series of problem locations was at the intersection of West Flagler Street and Southwest First Street with 17th Avenue. The two intersections are a short distance apart and each is irregular. One of them is a large triangular-shaped area in which Flagler Street offsets along the hypotenuse of the triangle, while 17th Avenue extends north and south along the base.

The other intersection is a combination of an off-set of First Street at 17th Avenue and a change in the width of First Street. Since the two intersections are but a short distance apart, the signals operate simultaneously on 17th Avenue, except that a lead of 8 seconds has been given traffic from the east on Flagler Street to allow left turns to be made before traffic starts from the west. They are postmounted

Speeding pedestrians and vehicles safely and separately requires a knowledge of what can be done in fitting signals to the various elements of a complicated intersection. Nearly every city has several such locations; six are here described and analyzed and the solutions explained in detail.

Looking west on N. E. 36th Street at Second Avenue, where the railroad tracks cut diagonally through the intersection. This crossing is frequently obstructed by trains, and before the signals were installed traffic used to became deadlocked in all directions when the railroad gates were opened.

Chattanooga, Tenn., in the heart of the Tennessee Valley.

DUAL Automatic Parking Meter

MORE BUILT-IN *QUALITY . . . LONGER LIFE LOWER MAINTENANCE*

CHATTANOOGA is just as quality-minded and as thrift-conscious as other progressive communities—especially where municipal improvements are concerned. That's why this thriving Tennessee city chose Dual Automatic Parking Meters back in 1939-40—installed more in 1946—and more again in 1949!

Once Duals are on the job, it's easy to see why they win "repeat performances". They're rugged, precision-built instruments—weather-proof and tamper-proof. No bothersome levers. Choice-of-coin performance. Easy-to-read timing. Stainless steel construction where protection is vital. And even more features that make Dual a greater value and a more economical buy than ever before.

If your community plans to install meters, or modernize its metered parking, ask about Dual's latest feature—simple *gearshift* convertibility. Find out how much more Dual Automatic Parking Meters give for the money. Send for free Dual bulletin.

THE DUAL PARKING METER COMPANY
A Subsidiary of The Union Metal Manufacturing Company
Canton 2, Ohio

. . . YOUR BEST ANSWER TO EVERY PARKING PROBLEM

and the adjustable faces have been carefully set to give the proper indications without conflict.

A large triangular island has been designated by pavement markings in the former intersection. Traffic moves northeast and southwest along the hypotenuse of the triangle between the two parts of Flagler Street. Traffic moves both north and south along the base of the triangle on 17th Avenue. The interchange between 17th Avenue north of the intersection and Flagler Street east of it is made along the north side of the triangle.

The confusion that has formerly existed at these two intersections has been greatly reduced, and traffic moves in all directions much more freely.

Problem 3

The third installation was at Northwest Fifth Street and Seventh Avenue, the southwest approach to which is across the Miami River bridge on Fifth Street. It is an irregular intersection with approaches from the north, east, southeast, and southwest, with all except the southeast approach carrying heavy traffic.

The river bridge opens frequently to permit boats to pass, except during the peak hours of 8 to 9 a.m. and 5 to 6:30 p.m. Formerly a small traffic circle defined by concrete buttons and a small concrete island at the end of the bridge constituted the only physical control, with frequent deadlocks occurring around the circle.

Three-phase Operation

The circle and the island were removed and three channelizing islands were installed, behind which right turns can be made on either red or green. Post-mounted signals with adjustable faces were installed on these islands, equipped for three-phase operation.

When the bridge is closed to river traffic, one phase of operation handles traffic from the north on Seventh Avenue and from the southeast on River Drive. Another phase handles traffic from the east on Fifth Street. A third phase admits traffic from the southwest on Fifth Street, across the bridge. Heavy movements from southwest to north and from east to southwest would make combinations of these two phases impractical.

When it is necessary to open the bridge to let a boat through, the actuation of the bridge controls turns off the stop-and-go operation of the signals after a slight delay to allow any traffic that may be on the bridge to clear, and traffic is permitted to move north and south while the bridge is open. Then, when the bridge is closed again, the stop-and-go operation resumes.

Large volumes of traffic now pass through this intersection easily and promptly. When the bridge opens for a boat to pass and then closes for vehicular traffic, the waiting vehicles are able to move promptly and congestion is avoided.

Problem 4

At Northwest First Avenue and Fifth Street is a combination of an offset intersection and a railroad crossing with a right-angle intersection on the other side. This is only three blocks from the Florida East Coast Railway station, and traffic is frequently interrupted by switching and by trains entering and leaving the station. Before signals were installed, such interruptions not only affected traffic crossing the railroad on Fifth Street, but also blocked the traffic in the off-set going north and south on First Avenue, thus stopping all traffic movements.

The problem was one of not only directing the movement of vehicular traffic to avoid congestion within its own operation, but also to coordinate its movement with rail traffic. So signals were installed facing westbound traffic on Fifth Street at the south leg of First Avenue, again at the north leg, and then again at First Court. Eastbound, signals face the traffic at First Court, the railroad crossing, and the south leg of First Avenue. North and south-bound, the traffic is controlled by signals on both legs of First Avenue and at First Court.

When a train is approaching the railroad crossing the watchman starts to actuate the crossing gates, east and west traffic is stopped, the stop-and-go operation of the signals ceases, and traffic is permitted to move through the off-set intersection on First Avenue north and south. Later, the same arrangement is to be installed on First Court.

One important requirement in planning this installation was that provision be made for traffic to clear the railroad crossing when the signals change from stop-and-go to static indication. Hence, no stop-signal faces west at the north leg of First Avenue and a green signal is displayed at First Court, facing east when the crossing is about to be blocked.

This installation has materially relieved congestion by giving each traffic movement a change and has greatly reduced the accumulation of cars while the crossing is blocked. The signals are coordinated for east and west movements on one phase and north and south movements on both sides of the tracks on the other phase.

Problem 5

The fifth installation in this series involved another problem of coordinating railway and street traffic. Northeast Second Avenue, 36th Street, and Federal Highway meet in a five-point intersection with the Florida East Coast Railway tracks passing diagonally through the middle, and dividing it into an "L" intersection on the west side of the tracks and a "T" intersection on the east side. Many train crossings and much switching interrupt the traffic. Before the signals were installed, cars commonly nosed into the intersection on both sides of the track for preferred positions when the trains had passed. However, this merely meant that the train blockade gave way to a traffic blockade which would take some time to clear. In fact, some serious accidents and many "close calls" occurred from the approach of a second train before the blockade following the passing of the first one had cleared.

Six post-mounted signals were installed with a three-phase controller. When no train is coming and the crossing gates are open, the signals operate on the three phases—east and west, north and south on the east side of the tracks, and then from the north on the west side. However, when the crossing operator actuates the gates the stop-

Looking west on 5th Street and 7th Avenue toward Miami River Bridge. Traffic used to deadlock around a small circle. Three porkchop islands now channelize the traffic, which is further directed by new traffic signals.

OVER 15 YEARS OF KNOW-HOW . . . OVER 600 CITIES *Know* WE KNOW HOW

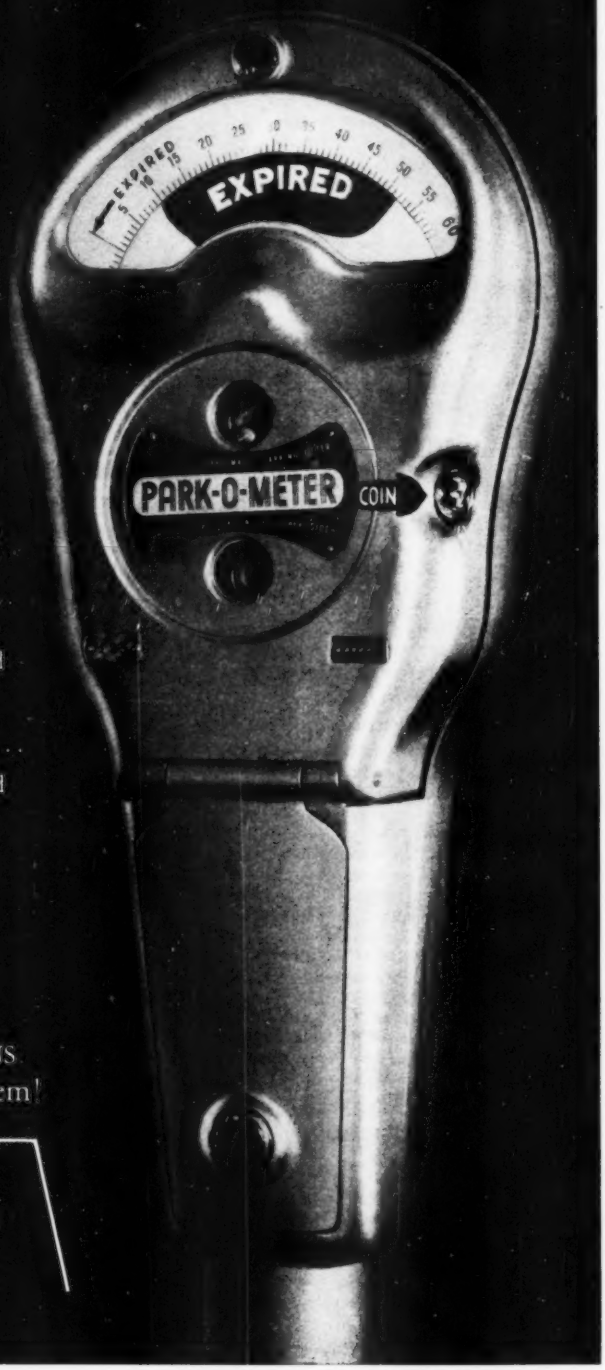
there's a reason

why

is the choice of the most important cities in America and why alert officials in hundreds of smaller places have installed Park-O-Meters. Proved dependability is one reason; superior performance is another . . . but there are many more . . . and they concern *you and your city*

in fact, there are exactly 39 REASONS

ask us to name them!



and-go operation ends and arrows permit right turns from the north and left turns from the west on the west side of the tracks and north and south movements with turns to the east on the east side. Drivers who are waiting to cross the tracks are not supposed to enter the intersection from any direction until the gates are raised and the stop-and-go operation is resumed.

Since the installation of the signals, the movement of traffic has been greatly improved and the delays have been substantially reduced.

Problem 6

The sixth installation in this series supplemented a partial installation made at a six-point intersection several years ago. Biscayne Boulevard, approaching from practically due south, merges with Federal Highway from slightly west of south and turns northeasterly. At this point the two are intersected by 55th Terrace, running east and west, and 4th Court, entering from the north.

By far the heaviest movements are on Biscayne Boulevard and Federal Highway and formerly the only control stopped traffic from the north on Biscayne Boulevard for Federal Highway traffic from the south and then stopped the latter traffic for the former. Traffic entered from the south on Biscayne Boulevard without interruption. Traffic from the north on 4th Court had no control. Neither did traffic from the east or west on 55th Terrace, but this traffic is extremely light. Pedestrians were the forgotten men at this intersection, but a new food market adjacent to the intersection, in addition to a large restaurant and some smaller stores, has recently made this a much more important pedestrian center.

The signals at this intersection were changed to include three phases of operation and to provide control for Biscayne Boulevard from the south and 4th Court from the north. The cross traffic on 55th Terrace is so slight as to make any separate indications for it unnecessary.

On one phase traffic moves only from the northeast on Biscayne Boulevard. On another it moves from the south on Biscayne Boulevard and from the north on 4th Court. Then on the third it moves from the south on Federal Highway and vehicles from the south on Biscayne Boulevard may continue northeast on that same thoroughfare, merging with traffic from Federal Highway.

Here, again, confusion has been almost completely eliminated and pedestrians now have protection.

A by-product of this new installation has been a marked increase in the amount of traffic on 4th Court, facilitated by the easier access to and from the Court at this busy intersection.

These six signal installations attack some of the most difficult traffic-control problems in Miami, problems of long standing, but they did not by any means bring the city up to date in all of its traffic control needs. In fact, bids were recently accepted and orders placed for equipment for twenty more locations. However, most of these are plain right-angle intersections where traffic control will not have to be coordinated with either train or boat movements. All this signalization involves equipment made by Crouse-Hinds, Eagle, and Marbelite.

With a 54% increase in traffic volume between February 1946 and February 1949, more intersections are qualifying for traffic control each year. Along with the addition of signals at new intersections will come the need for revising many of the existing installations to meet the increasing needs more effectively. In some cases more phases will be required. In others existing channelization will need to be removed and completely different patterns inaugurated. In still other cases, program timing will be necessary.

Traffic control in a rapidly growing city can never become static. Revision of equipment to give more flexibility, interconnection for better coordination, and additional signals to meet new requirements, are all parts of the program that we foresee in Miami.

Bluefield Makes Money On Municipal Parking Building

THE City of Bluefield, W. Va., shopping mecca of 300,000 persons in a 50-mile radius, presents the results of 11 months' operation of what is believed to be the world's first publicly financed municipally owned automobile parking building.

The building is situated upon a lot with street frontage on three sides and a public alley on the fourth side, within 250 feet of the U. S. Post Office, 300 feet of the Municipal Building, 100 feet of the largest hotel, and three blocks of all banking institutions, shopping and business-center districts. It is of the open-air type with capacity for 800 cars.

The three-man non-political Parking Building Commission, appointed in February 1949 by the Board of Directors of the City of Bluefield, reports that during the eight-month period of July 1, 1948, to February 23, 1949, inclusive, net profits before debt service amounted to $7,845.92. For the three-month period of March 1, 1949, to May 31, 1949, inclusive, profit was $9,485.34. This represented an increase from a monthly average of $980 under the old management to $3,161 under the new. The rates are 40 cents per day, 50 cents per night, 15 cents for two hours and 5 cents for each additional hour. There are also monthly rates.

The city is obligated to pay into a sinking fund all monies remaining after payment of operating maintenance and repair expenses. These monies will be used solely for the purpose of paying the principal and interest on the bonds, the cost of improvements to the project, and the establishment of a reserve which must at all times amount to a minimum of 10% of the outstanding bonds. In addition to this required 10% reserve, there must be reserve in the aggregate of the principal amount of the bonds and interest thereon becoming due in the next twelve-month period and the amount of fiscal agency charges within said period. Surplus earnings cannot be transferred to general fund until an approximate 36-month anticipated debt-service charge be set up as a reserve.

Debt-service charges are now being earned at the rate of over 1½ times, and local officials are looking forward to building up the surplus in the reserve fund to anticipate maturities of bonds.

The parking building was designed by Alexander B. Mahood, of Bluefield, and built by C. L. Lewis, Lynchburg, Va., and the financing was handled by Scott Horner & Mason Inc., Lynchburg. A. Harry Vest is Mayor and E. P. Mitchell is City Manager.

First Trolley Coach On San Francisco's Market Street

One of 190 trolley coaches which recently augmented the city's fleet. This Twin Coach is powered by Westinghouse motors and equipped for dynamic braking on grades up to 19%.

JOSLYN STREET LIGHTING

Luminaires, brackets and steel standards all engineered for

HIGH OPERATING EFFICIENCY, DURABILITY and ATTRACTIVE APPEARANCE

now available on

QUICK DELIVERY

The 25′ JOSLYN STEEL POLE with 6′ bracket

The 25′ pole with 6′ bracket and base having 3" x 5" hand hole, as illustrated, is now carried in stock in our Chicago plant . . . Many other designs are available for various mounting heights, bracket lengths, and with provision for mounting transformer in base or with fittings for overhead wiring . . . The wall thickness of our poles at the base is over ¼", giving that added assurance of strength and long life . . . Complete information on request.

Branch offices in principal cities

•

THE JOSLYN CO.
THE SOUTH EAST JOSLYN CO.
SOUTHERN JOSLYN CO.
JOSLYN SOUTHWEST CO.
JOSLYN PACIFIC CO.

JOSLYN MFG. AND SUPPLY CO.

Complete Pole Line Equipment

20 NORTH WACKER DRIVE, CHICAGO 6, ILL.

Good Street Lighting Is Money in the Bank

IN ONTARIO there are about twenty non-fatal accidents to each fatal one. In the United States the ratio is about 35 to 1.

All of the daytime hazards exist at night, with the added one of reduced visibility. The problem is to provide sufficient light to enable drivers to see pedestrians or obstacles as quickly as they can during daylight. This is accomplished with an intensity of about 1 footcandle. This requires approximately 50 lighting units per mile with 10,000-lumen series or 500-watt multiple lamps with modern light-directing luminaires.

There are many factors affecting the cost of street lighting that render it difficult to make an estimate representative of average conditions. However, it will be close enough for our purpose to take $50 as the annual charge per unit for a 1-footcandle installation or $2,500 per mile. Fixtures are I.E.S. distributions No. 2, 3 or 4.

Results of Survey

The final effect that improved lighting may have upon the accident rate cannot be predicted accurately because of local conditions and traffic density, but enough information has been accumulated through experience to indicate what may be expected. The results of surveys made in twelve cities spread across the United States showed that night deaths were decreased 75%, owing largely to better lighting. The value of property thus conserved was estimated at $500,000,000.

In one city ten miles of streets were relighted, increasing the intensity from .2 to .7 footcandle. Before the change, night accidents cost $100,300. After the change, the costs (average for four years) were $40,230. The cost of the added lighting was $8,500.

The relighting of 14 intersections reduced the cost of night accidents from $31,280 for one year before to $9,020, for one year after the change. The cost of the added lighting was $624.

In a city with a population of 100,000, the total cost of accidents during 1947 was $434,000, including salaries, medical bills, automobile repairs, and other items. If two-thirds of these accidents occurred at night (the general proportion) and one-half of them would have been prevented by good lighting, it would leave $144,500, which would pay the annual cost of lighting about 2.858 units to produce 1 footcandle on about 57 miles of our streets.

Who gains? Of course the individuals who remain alive and well, instead of being killed or injured. As a matter of fact, all the owners and drivers of vehicles gain when there is a reduction in insurance rates. A study of the rates with respect to street lighting has revealed the interesting fact that in the cities where the per-capita cost for street lighting is lowest, the accident insurance rates are generally highest.

In fact, the channels through which the savings made by modern street lighting reach the individual are not all obvious. The more direct ones are hospital and medical fees, insurance rates, car repairs, and sustained earning power. These alone are sufficient to justify the costs of good lighting.

GEORGE G. COUSINS
Lighting Engineer
The Hydro-Electric Power Commission
Ontario, Canada

IES Sponsors Bulletin on Standards

THE bulletin, *American Standard Practice for Street and Highway Lighting*, contains recommendations for modern lighting of public ways.

The common factor in all street and highway safety considerations is the volume of vehicular and pedestrian traffic. As traffic volume increases, the exposure to accident also increases, and good visibility is more difficult to achieve in the confusion of moving vehicles and pedestrians. Therefore, recommendations for levels of street and highway lighting are made on the basis of the volume of traffic.

Poor visibility renders the hours of dusk and darkness dangerous for persons walking. The pedestrian-accident problem is particularly acute at night where the volume of pedestrian traffic is large or streets are unusually wide, and in areas where the population is very dense and children must play in the streets for lack of other playgrounds. Other potentially dangerous areas will be found wherever pedestrians congregate, as on streets around churches, schools, theaters, factories and street-transportation loading zones. The average footcandle values shown in the table for various classifications of streets are the minimum levels of illumination recommended for traffic safety. Experience has shown in many instances that higher illumination values afford increased pedestrian safety. In general, at locations of high accident experience, illumination is recommended which will insure good visibility.

The recommended footcandle values are the minimum average value on the roadway between curbs. In general the same values also provide satisfactory sidewalk illumination. On streets carrying a light traffic volume, where the illumination recommended is less than 0.8 footcandles, objects are seen by silhouette and the reflectivity of the pavement becomes an important factor. For safe seeing when the street reflectivity is low, the illumination values must be

RECOMMENDED* AVERAGE HORIZONTAL FOOTCANDLES (LUMENS PER SQUARE FOOT) FOR URBAN STREETS

	Vehicular Traffic Classification			
Pedestrian Traffic	Very Light (Under 150)	Light (150-500)	Medium (500-1,200)	Heavy to Heaviest (1,200 up)
Heavy	**	0.8	1.0	1.2
Medium	**	0.6	0.8	1.0
Light or None	0.2	0.4	0.6	0.8

* These are the values which should be maintained in service. All lighting systems deliver less light as dirt collects and the light sources age. The initial footcandle levels should be somewhat higher than the specified values to compensate for this depreciation.

** This condition is unusual, but if it should occur the footcandle figures appearing in the column to the right may be used.

New traffic signal cuts costs two ways

This new traffic signal has cast brackets top and bottom—replacing the usual collection of crosses, tees and pipes of previous models. In the lower cast bracket is the terminal board—easily accessible and with plenty of finger room for wiring.

This construction feature gives you:

- **Lower Installation Costs.** With the terminal board so accessible in the slip-fitter bracket, the signal is easily, quickly wired. And as there are fewer parts to mount, assembly time is less.

- **Lower Maintenance Costs.** Servicing is easy as the terminal board is quickly accessible. Back off four screws and the terminal board is ready for inspection.

- **Better Appearance.** Clean, modern, functional lines of this signal improve the appearance of your street.

- **Signals Conveniently Added.** Signal sections such as "Walk," "Wait" or arrows can be added to the bottom bracket. When this provision is specified, the bracket is tapped and capped until the extra section is required.

- **Accurate Signal Alignment.** Rigid castings and bolted signal housings eliminate danger of off-center signal alignment.

- **Lower Price.** And this new unit, available in two- or three-way, retains all the reliability you expect of a General Electric signal, plus all of these new additional features, ***sells at a price lower than the previous model.***

Here's a traffic signal you'll want to know more about. To get all the information you'll need, write Apparatus Department, General Electric Company, Schenectady 5, New York.

By backing off four screws, the terminal-board cover is removed and terminal board exposed. It is then only necessary to connect the wires and replace the cover.

GENERAL ELECTRIC

increased above the recommended values.

The proper type, arrangement, and mounting of lighting units relative to the pavement are specified for various classes of roads. Another section deals with the reduction of visibility caused by glare from luminaires, road brightness, and automobile headlights. "The American Standard Practice for Street and Highway Lighting" was prepared under the sponsorship of the Illuminating Engineering Society. It is available at 50 cents per copy from the following:

Illuminating Engineering Society, 51 Madison Ave., New York 10, N. Y.

Street & Traffic Safety Lighting Bureau, 155 East 44th St., New York 17, N. Y.

American Standards Association, 70 East 45th St., New York 17, N. Y.

Rochester, N. Y., Reports On Street Lighting Costs

By JOHN V. LEWIS
Bureau of Maintenance and Operation
Department of Public Works

RELIGHTING the main street of any town always makes a good story. The public takes notice. By and large over many cities, less dramatic street-lighting improvements are taking place year in and year out. A look at the records for Rochester, N. Y., shows steady extensions from 1910 to 1932, with replacements since the latter year.

	1910	1932	1949
Number of street lights	4,400	19,400	22,000
Per cent overhead	75%	18%	20%
Per cent underground	25%	82%	80%
Annual cost	$240,000	$870,000	

At present, however, we have under way a five-year program costing $125,000 per year. The average lamp of all our 22,000 units is 6,000 lumens. Our experience with standards covers nearly all types, with 20% wood, 12% steel, 18% cast iron, and 50% concrete. In order of importance, in our estimation, the factors that determine selection of standards are installation cost, maintenance cost, appearance, and strength. From the standpoint of appearance we prefer continuous tapered plain. For all locations we prefer steel standards.

The system is owned, operated, and maintained by the Rochester Gas and Electric Corporation in accordance with a contract expiring *December* 31, 1949, which provides a *three-rate charge.*

(1) *Annual Facility Charge Per Lineal Foot of Street Lighted*

	Per Foot
Underground Wiring	
(a) Cable and lamps along one side only	$ .125
(b) Cable along one side, staggered lamp arrangement via crossovers. (Not exceeding 30′ widths)	.155
(c) Cable along one side, lamps arranged opposite and fed via crossover	.210
On streets wider than 30′ between curbs, add for each 5′ of width or fraction thereof to (b) above	.0065
On streets wider than 30′ between curbs, add for each 5′ of width or fraction thereof to (c) above	.0125
(d) Cable along both sides	.250
Overhead Wiring	
(a) To serve lamps along common pole line	.030
(b) To serve lamps along line for lighting only	.045
(c) For staggered arrangement add to (a) or (b) above $4.00 per lamp on side opposite main line	

(2) *Lamp-Unit Charges Per Annum* (365 days)

Lumens	Unit Charge	No.
1,000	$ 7.10	2,594
2,500	10.75	10,340
4,000	15.70	2,928
6,000	24.20	2,528
10,000	39.05	1,556
15,000	55.45	30
		19,976

(3) *One Part Rate—Special Service Lighting—Underpasses, etc.*

		Unit Charge	No.
C1	(Approx. 1,000 lumens)	$ 8.70	7
C3	(Approx. 1,500 lumens)	14.70	40
C4	(Approx. 2,500 lumens)	20.55	44
C5	(24 hr.) (Approx. 2,500 lumens)	27.70	98
			189

Operation Schedule—4,000 hours per year
Miles of street lighted—underground—322
Miles of street lighted—overhead—182
Population—1940—324,975
Annual cost of lighting—1-1-45 (minimum)—$763,860

(4) *Fixture Charge Per Annum* (365 days)

Type	*Description*	Unit Charge	No.
1	10′ or 12½′ concrete pole with harp fixture	$ 8.75	9,767
(*) 1ax	9½′ concrete pole with globe	5.37	1,683
2	12½′ metal poles with harp fixture	13.20	845
3	20′ tubular steel—open-type pendant fixture	11.50	1,667
5	Mast arm—open-type pendant fixture (wood pole)	3.75	4,054
6	18′ metal standard—pole-top globe fixture	27.45	184
7a	12½′ metal standard—pole-top globe fixture	17.00	330
8a	18′ metal standard—twin-pole-top globe fixtures	46.50	353
9a2	20′ tubular steel—twin open-pendant fixtures	32.05	17
(*) 9a3x	20′ tubular steel—triple open-pendant fixtures	44.20	1
10a	Type 1 arranged for globe enclosed pendant fixture	11.00	3
10b	Type 2 arranged for globe enclosed pendant fixture	15.40	
(*) 10cx	Trolley pole arranged for globe enclosed pendant fixture	15.75	51
10d	Type 5 arranged for globe enclosed pendant fixture	6.60	17
10e	Type 3 arranged for globe enclosed pendant fixture	18.35	76
10f	Fluted pole with base arranged for globe enclosed pendant fixture	19.60	276
11	Same as 10f except heavy duty and large luminaire	23.45	280
			19,604

NOTE: (*) Not available for new installations.

Merchants Benefit In Coraopolis

THE new street lighting in Coraopolis, Pa., has been a worthwhile civic improvement. Many of our neighboring communities had improved the lighting in their business areas with beneficial results for their merchants. By relighting our business district, we helped our merchants, too. Since the new lights have been installed on Fifth Avenue and Mill Street, we have found that there is a greater volume of business and increased profits for merchants in the borough.

In addition, the new street lighting has been an aid to traffic safety and has added to our community prestige. We have received many favorable comments from out-of-towners, as well as from our own people, because the relighted streets are bright and cheerful at night. The new street lighting is visible evidence that our borough is progressive and up-to-date. The relighting of this section was the first step in a program developed by the Duquesne Light Company for our borough. Other steps will light the entire borough. The program was prepared after a field survey of every street. A blueprint of the proposed system was prepared for the municipal officials. It showed the exact location of each street light, the spacing and mounting height, the type of luminaire, the size of lamp, and other information pertinent to the design of a good street-lighting installation.

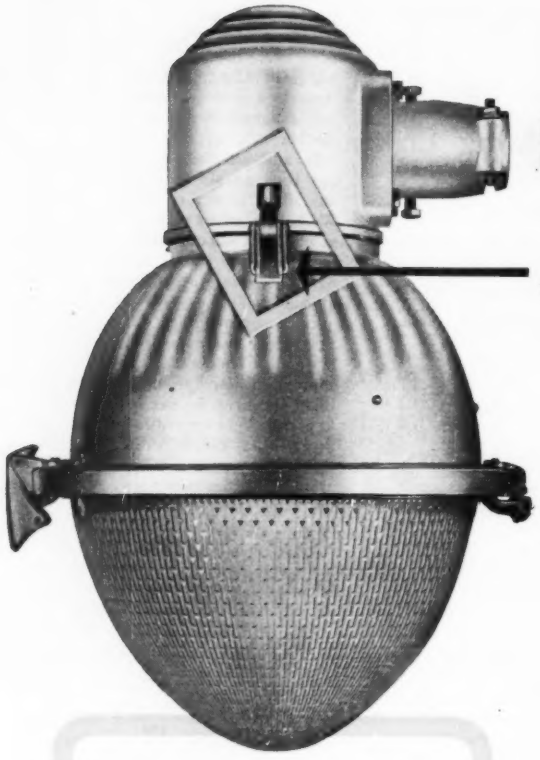
JAMES CICCONE, *President Coraopolis (Pa.) Council*

Lighting Ceremony In Kankakee, Ill.

AT 9:10 p.m. of a recent evening in Kankakee, Ill., all lights in the entire business district, including store interiors, were blacked out. A torchlight parade advanced to a reviewing stand where the Mayor stood. An aerial bomb exploded to signal the turning on of all lights, including the new mercury-vapor street lights. The city was baptized in light strong enough for reading a newspaper anywhere in the downtown district. A crowd of 35,000, which included visiting dignitaries from other cities, witnessed the Chamber of Commerce-planned presentation.

The 198 General Electric luminaires on Union Metal aluminum octa-flute monotube standards are mounted 31½ feet above street surface. On the principal business streets are 21,000-lumen lamps, and on other streets 16,000-lumen, approximately 90 feet apart. The cost, $165,000, was provided by special assessment bonds and amounted to an average of $8.60 per lineal foot.

YOU CAN BE SURE.. IF IT'S
Westinghouse



System Standardization

with Standard "Latch-On" Attachment

This means low-cost, flexible system operation, because fewer parts are required for maintaining a complete system. Westinghouse provides a "Latch-On" AK-10 built to the proposed EEI-NEMA standards—making it interchangeable with similar units built to these standards.

NOW, you can have an industry standard unit, PLUS these Westinghouse features:

1. **A larger unit—more radiating surface—cooler lamp operation.**
2. **Heavy, stainless steel "Latch-On" springs.**
3. **Heavier reflector—made from .064" Alclad aluminum.**
4. **Meets all A.S.A.-I.E.S. light distribution patterns.**

This is only part of the story. Write today for booklet B-4237, Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pa., or call your nearest Westinghouse office. J-04246

ONE of thousands of combinations of this famous "AK family" will be the right choice for your street lighting needs. Standardized, completely interchangeable parts for low-cost modern public safety lighting. Lighting Division, Westinghouse Electric Corporation, Cleveland, Ohio.

Westinghouse
PLANNED LIGHTING PAYS

Watertown Has a New Flood-lighted Sports Field

By C. LELAND WOOD
City Manager
Watertown, N. Y.

LOCAL interest in athletic events led the Watertown, N. Y., City Council in 1947 to consider the development of a city-owned area of about 35 acres into a sports and recreation center as a war memorial. A change in city administration resulted in a taxpayers' referendum for a change in site. Proponents of the purchase of the Jefferson County Fairgrounds at an additional cost of $45,000 won, and the preliminary work accomplished on the original site was abandoned.

Hussey semi-permanent bleachers, to serve 1,750 people, and a complete field-lighting system, purchased for the first location, were shifted for use at the fairgrounds. Owing to the destruction of the old wooden grandstand at the fairground site, by a fire a few hours after the final baseball game in September 1947, the bleachers were erected temporarily last spring in place of the old structure as a convenience for last summer's baseball season.

The development of the fairground area is virtually complete now. A new 1,800-capacity Hussey covered stand was erected at a cost of $60,000 along the outside of the race track. Team dressing rooms, concessions space, and other essential rooms were built under the seat deck at a cost of about $15,000.

The grandstand supporting structure is steel and the roof deck is wood with a sheet roof. The seats are of treated wood with wood backs and are supported by a treated wood floor. The back and ends of the stand below the railing level are enclosed with dark red asbestos-covered galvanized sheet metal. The booth surmounting the roof accommodates press and radio broadcasting rooms.

Has 160 Floodlights

The old field-floodlighting system was replaced by a more modern one as required for a Class C baseball field, at a cost of $30,000. It consists of one hundred and sixty 1,500-watt floodlights mounted on 90-foot poles.

The football field adjoining and within the race track, including the erection of the old floodlighting system, has cost about $10,000. New portable bleachers to accommodate 2,000 people are about to be ordered for the gridiron use.

Erection of a 7-foot chain-link fence enclosing the fairground property; necessary board fences around the race track, grandstand and outfield of the baseball diamond; grading of auto-parking area; paved access roads; storm- and sanitary-sewer mains, and miscellaneous items bring the total cost to about $200,000 to July 15, 1949. A balance of $35,000 remains with which to purchase the bleachers and pay for some other work.

This photo shows the type and construction of Watertown's new grandstand, which was supplied by The Hussey Manufacturing Co., of North Berwick, Me.

The fairground has some old buildings which have been used for county-fair activities for years. Structures that can be easily repaired may eventually be moved to another location and new units built to replace those beyond repair. A large wooden building is in active use as a roller-skating rink. Other activities include circus displays, a locally sponsored annual horse show, midget automobile races, farm-market retail sales, and the Recreation Department's hockey and ice-skating rink. Other activities may be developed as the need appears.

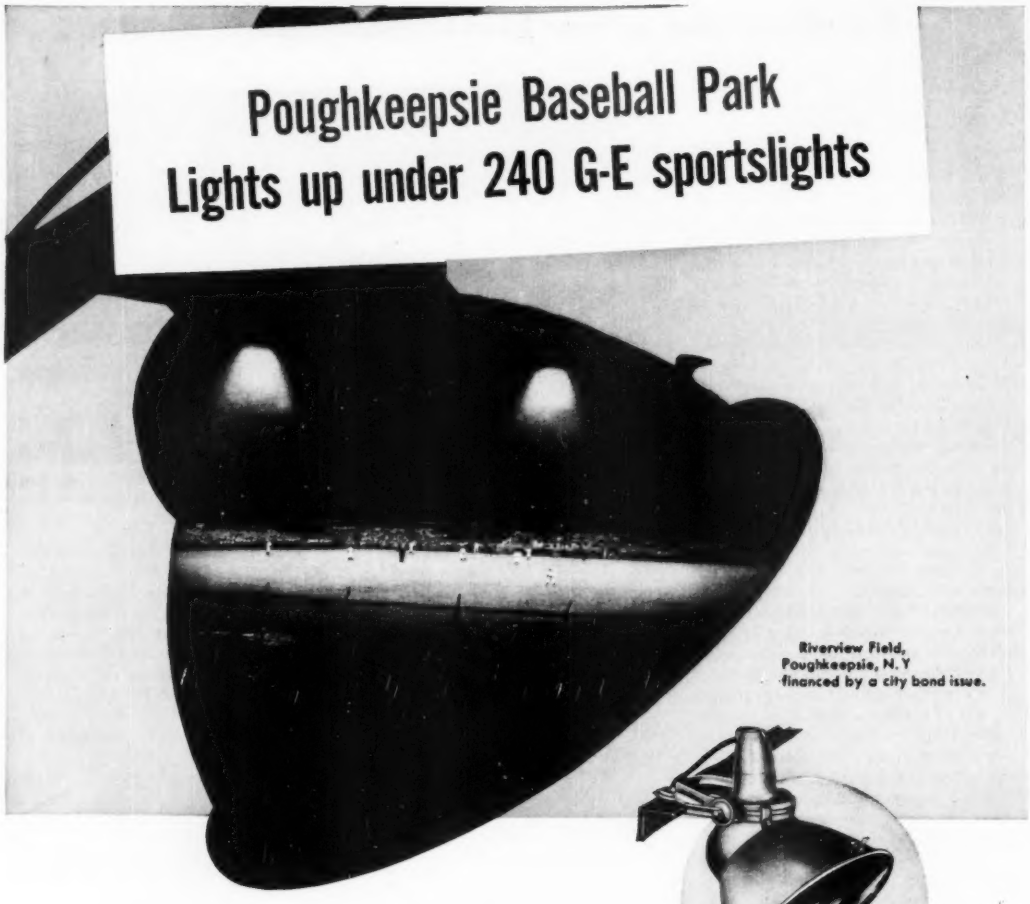
Mercury-Vapor White Way For North Adams, Mass.

A MERCURY-VAPOR white way was recently completed at North Adams, Mass., by the New England Power Service Company and the Northern Berkshire Gas Company.

On the four main streets, 109 General Electric luminaires, mounted on 4- and 6-foot brackets at an average height of 25 feet, are used. Spacing ranges from 90 to 165 feet, either staggered or opposite. The mercury-vapor lamps are rated 250-watt or 11,500-lumen except for a section of one of the streets lighted by 400-watt or 16,000-lumen mercury lamps.

The control for the lighting system is series to multiple. A series-multiple relay picks up a pilot-wire circuit which causes multiple switches to close their contacts and energize the lamps. It is estimated that the total connected load is 27 kw.

Poughkeepsie Baseball Park Lights up under 240 G-E sportslights



Riverview Field,
Poughkeepsie, N. Y
financed by a city bond issue.

This is Riverview Field, Poughkeepsie, N. Y., used for professional baseball games and community events.

The lighting equipment is a permanent high-grade type which will give continuing years of service and be an asset to the community for years to come. The lights are banked on 100-foot steel poles, set in concrete. 240 G-E type L-69 sports floodlights illuminate the entire playing field to an average intensity of 40 foot candles. All wiring is underground. The park uses the same floodlight and same basic plan of lighting—on a smaller scale—as that used in Yankee Stadium.

Our part, of course, was the floodlighting. Riverview Field uses a standard G-E "240" lighting system—planned, ordered, and installed according to the G-E manual.

THE SPORTSLIGHT—This is the floodlight used at Riverview Field, the G-E L-69. It gives more light per unit, more light per watt, is easier to install and cheaper to maintain than any other comparable unit. It's so good that four major-league parks use it, so economical that it's the favorite for sand-lot softball. Bulletin GEA-4835 gives complete description and prices.

FREE PLANS AVAILABLE—This is the manual that contains 38 complete floodlighting plans for sports and recreation. One is the "240" lighting system used at Riverview Field—240 G-E floodlights on 10 100-foot steel poles—complete with a list of all material required down to concrete and paint. Among other plans are tennis courts, volley ball, softball fields. Ask for it as GET-1284. Address *Apparatus Dept., General Electric Company, Schenectady 5, N. Y.*

GENERAL ELECTRIC

451-134

Zoning and Planning Notes

Edited by NORMAN WILLIAMS, Jr.

Racial Discrimination In Urban Redevelopment

NEW YORK. *Dorsey v. Stuyvesant Town Corporation* and *Polier v. O'Dwyer*, New York Court of Appeals. (Not yet reported.)

Familiarity, over a long period and under decent living conditions, is much more apt to breed mutual respect than contempt. In fact, efforts to eliminate racial and religious discrimination from American life can only be expected to be really successful if schools, residential neighborhoods, and places of employment provide opportunities for contacts with various class, racial and religious groups—and if economic insecurity is reduced. The choice between diversified or "homogeneous" (i.e., ghetto) neighborhoods is thus a crucial one for American democracy.

Now that the Housing Act of 1949 has made 500 million dollars available for capital grants to aid urban redevelopment, such programs may be expected to go forward rapidly. This large-scale rebuilding of American cities will set the pattern of residential development for many years to come. When government undertakes to aid and join with private groups in this—or any other—housing program, it is necessarily forced to take a stand for or against the ghetto pattern usually insisted upon in private developments.

While over one-half of the states have passed urban redevelopment laws, usually no provision has been made to prevent redevelopment from repeating and even extending the ghetto pattern—except in Pennsylvania, and in the cities of New York and San Francisco. The judicial test on the constitutional validity of discrimination therefore takes on particular importance. The first case arose from the first major redevelopment project, Stuyvesant Town in New York City. Since the original New York Redevelopment Corporations Law of 1941 did not attract any corporate investment, the Redevelopment Companies Law was passed in 1942, and amended in 1943. At least the 1943 amendments were tailored to fit the Metropolitan Life Insurance Company's proposal to build Stuyvesant Town.

Pursuant to this statute, the New York City administration and Metropolitan agreed on a program of joint action for the project, and a contract following the terms of the statute was passed on by the proper City authorities. Under that contract, the City (1) condemned all the land and turned it over to Metropolitan at cost, (2) agreed to a tax exemption on the improvements for 25 years (amounting to about 50 million dollars), and (3) granted Metropolitan certain police powers. Metropolitan agreed (through its wholly owned subsidiary, Stuyvesant Town Corporation) to provide the funds, to build the project, and to submit to various measures of control. Stuyvesant Town, now practically finished and largely occupied, covers 18 former city blocks, extending from 14th to 20th Streets and from First Avenue to Avenue C in New York City. The project, consisting of sixteen 12- and 14-story buildings covering 25% of the site, contains 8,755 apartments, housing about 25,000 people. (In 1940 there were only 25 cities in the State of New York of greater population than that.)

In renting the apartments in the project, Metropolitan (and Stuyvesant) admittedly refused to accept any Negroes as tenants.[1] Two actions were brought to challenge this policy. In one, three Negro veterans made an application for admission to Stuyvesant Town, and brought an action to enjoin Metropolitan and Stuyvesant from discriminating against Negroes. In this action the vital question was whether, in the circumstances of this case, Metropolitan and Stuyvesant had taken advantage of and used state powers to such an extent as to bring into effect the constitutional guarantee of equal protection with respect to all "state action." In the other action, a taxpayer sued to enjoin the execution of the contract between the City and Metropolitan, on the ground that the City's participation in the project obviously constituted state action. Both actions were dismissed by the trial court (New York Supreme Court), in an opinion in 1947 which leaned heavily on the cases enforcing racial covenants. After the United States Supreme Court refused to sanction enforcement of racial covenants,[2] the Appellate Division affirmed unanimously, without opinion. The New York Court of Appeals recently (1) affirmed in the *Dorsey* case by a bare majority, 4 to 3, with elaborate opinions by Judge Bruce Bromley for the majority and Judge Stanley Fuld for the minority, and (2) unanimously and briefly affirmed the dismissal of the taxpayers suit, on the ground that such an action was not a proper method of testing constitutionality in this case.

[1] The Metropolitan officials insisted that Negroes and whites could not live together. It must be remembered, however, that (1) until fairly recently most urban Negroes have lived in "mixed" neighborhoods, (2) the New York City Housing Authority has been operating "mixed" projects for years without trouble, and (3) under the more recent city ordinance, forbidding racial discrimination in future publicly-aided developments, several "mixed" projects are now under construction—for example, Queensview (financed by the Mutual Life Insurance Co.), Bell Park Gardens (insured by F.H.A.), and a second project built by the Amalgamated Clothing Workers.

[2] *Shelley* v. *Kraemer*, 334 V.J. 1 (1948). See discussion in THE AMERICAN CITY for September 1948.

The tone of the majority opinion was set immediately by the statement of facts.

"Stuyvesant is a private corporation, all of its stock and debentures being owned and all of its working capital having been provided by Metropolitan. The entire cost of acquisition of the land in the project area and of the construction of the project has been advanced by Metropolitan. It represents an investment of not less than 90 million dollars of private funds held by Metropolitan for the benefit of its more than six and one-half million policy holders."

And later,

"Stuyvesant agreed to acquire the area, demolish the old buildings and construct new ones, all without expense to the city. Metropolitan agreed to advance the necessary funds to Stuyvesant, guaranteed performance by the latter, and, with Stuyvesant, assumed all risks of the venture. The city granted tax exemption for 25 years only to the extent of the enhanced value to be created by the project. Stuyvesant agreed to convey to the city bordering strips around the periphery of the project in exchange for land in streets which the city agreed to close."[3]

With these facts squarely in mind, the opinion then proceeded to a detailed analysis of the New York State Constitution and statutes, and of the constitutional questions involved. First, the Court held that, under the housing article of the New York State Constitution, "low-rent housing for persons of low income is to be a function of government and the rehabilitation of sub-standard areas is to be the function of private enterprise aided by government."[4] Second, the constitutional and statutory provisions for joint public and private action in redevelopment were set forth at length. The Court concluded that "The Legislature deliberately and intentionally refrained from imposing any restrictions upon a redevelopment company in its choice of tenants," particularly since the State Legislature had rejected repeated proposals to insert into the law anti-discrimination provisions similar to those in the Public Housing Law. The Court emphasized that, in 1943, when amendments were passed by the State Legislature to facilitate the project and when the contract was passed on by the Board of Estimate, it was publicly understood that Stuyvesant Town would not rent apartments to Negroes.[5] Third, it was held that the civil rights guarantee in the

[3] The net gain to the project from vacating previously existing streets amounted to 19% of the total site.

[4] It is doubtful whether the wording of the housing article of the State Constitution indicates that the clearance and replanning of a sub-standard area by a local government, at least for public buildings, would not be proper.

[5] In *Pratt* v. *LaGuardia*, 182 New York Miscellaneous 462 (1944), affirmed, 268 Appellate Division 713 (1944), appeal dismissed, 294 New York 842 (1945) a series of New York courts held an action to enjoin discrimination was premature in 1944-45 because Metropolitan had not yet adopted a definitive policy on renting. Now the Court held (1) that, since everyone knew in 1943 that discrimination was to be practiced in the project, the Legislature and the City must have deliberately approved the discrimination—and (2) that the discrimination was put into effect without any "state action."

CROUSE-HINDS

Elevated Runway and Taxi Light

with mounting assemblies to suit YOUR requirements

Crouse-Hinds Type ERL Elevated Marker Light with Transformer Housing

Style A mounting is illustrated in the sectional view of Type ERL Elevated Marker Light shown above. It is for series circuits and consists of surface flange, anchor assembly, and isolating transformer.

Style B mounting is illustrated in the broken-away view at the left. It consists of a base plate and gasket to fit transformer base housings. It is used for converting existing flush marker light fixtures to ERL fixtures or for new installations at large airports or wherever a first-class wiring installation is desired. This mounting provides maximum accessibilty of the transformers and connections and will save considerable time in case of wiring difficulties. Style B mounting can be used on either series or multiple circuits.

Style C mounting is for multiple circuits and consists of a junction box with a hub cover on top, two squeeze connectors for through-feed cables at the bottom, and a 30-inch angle iron anchor. This mounting is especially desirable for taxi light installations or other situations where straight three-wire multiple circuits are desirable.

Crouse-Hinds Elevated Marker Light is built to meet Specification L-802 of the Civil Aeronautics Administration. It has a variable height up to 30 inches overall to meet local snow conditions. Either symmetric or asymmetric light distribution can be furnished. The globe is clear for runway lights, green for threshold lights, or blue for taxi lights. A breakable aluminum coupling is at the bottom of the mounting column. It is designed to withstand high winds and propeller blasts but will break readily upon impact.

This marker light is one of the hundreds of items in Crouse-Hinds complete line of airport lighting and control equipment. Write for full details on the equipment you require, whether it is a single unit or a complete airport installation.

CROUSE-HINDS COMPANY
Syracuse 1, N. Y.

Offices: Birmingham – Boston – Buffalo – Chicago – Cincinnati – Cleveland – Dallas
Denver – Detroit – Houston – Indianapolis – Kansas City – Los Angeles
Milwaukee – Minneapolis – New York – Philadelphia – Pittsburgh
Portland, Ore. – San Francisco – Seattle – St. Louis – Washington.
Resident Representatives: Albany – Atlanta – Charlotte – New Orleans – Richmond, Va.
CROUSE-HINDS COMPANY OF CANADA, LTD., *Main Office and Plant:* TORONTO, ONT.

A Nationwide Distribution Through Electrical Wholesalers

AIRPORT LIGHTING • FLOODLIGHTS • CONDULETS • TRAFFIC SIGNALS

New York State Constitution was not self-executing, and therefore that, in the absence of legislation so stating, the right to purchase and lease property without discrimination was not a "civil right" under New York law. Fourth, the equal protection clause of the State Constitution—which contains no reference to state action—was held to be limited to state action, as the Fourteenth Amendment to the Federal Constitution explicitly is. Finally, on the main constitutional question, the Court held that the refusal to accept Negroes as tenants in Stuyvesant Town did not involve any state action, and so that the equal protection clause of the Fourteenth Amendment did not apply.

The analysis in the majority opinion of what constitutes state action recognized that the concept has expanded—

"The evolution of our society has disclosed state action where doubtless it would not have been found in an earlier day."

However, the majority opinion distinguished all the cases which have expanded that concept as involving either:

1. Private action under compulsion of law.

2. Private action exercising a governmental function in a matter of great public importance.

3. State action "directly" or "consciously" in support of discrimination.

The majority opinion insisted that none of these conditions was fulfilled in the present case.

The majority felt that the 14th Amendment could apply to the case only by including any situation where the state tolerated discrimination in a matter of public importance, or any state assistance to an organization which limited its benefits to a restricted group. If civil rights were to be safeguarded in such situations, the Court felt that the state legislatures should take the responsibility for action.

The Minority Opinion

The minority opinion moves in quite a different intellectual world, and concentrates largely on the basic constitutional question of "state action." The preliminary statement and statement of facts, as contrasted with the majority opinion, provide an excellent illustration of the old saying —"Let me find the facts and I'll let anyone find the law."

"Undenied and undeniable is the fundamental proposition that 'distinctions between citizens solely because of their ancestry are by their very nature odious to a free people whose institutions are founded upon the doctrine of equality.' (*Hirabayashi v. United States*, 320 U. S. 81, 100). The average citizen, aware of that truth but unschooled in legal niceties, will, I venture, find the decision which the court now makes extremely perplexing. While the Stuyvesant Town housing project was in blueprint and under construction, the public understood, and rightly, that it was an undertaking on which the State and the City of New York had bestowed the blessings and benefits of governmental powers. Now that the development is a reality, the public is told in effect that, because Metropolitan and Stuyvesant are private companies, they are not subject to the equal protection clause, and may, if they choose, discriminate against Negroes in selecting tenants. That conclusion strikes me as totally at odds with common understanding and not less so with the facts and circumstances disclosed by the record.

"Stuyvesant is in no sense an ordinary private landlord. Its title bespeaks its character. With buildings covering many city blocks, housing a population of 25,000 persons, Stuyvesant is a 'Town' in more than name. Its very being depended upon constitutional amendment, statutory enactment and city contract. The exercise of a number of governmental functions was absolutely prerequisite to its existence. As a geographic entity, Stuyvesant Town was created by the City's exercise of its eminent domain and street-closing powers and by its act of transferring such condemned land and public property to respondents. As an economic enterprise, Stuyvesant Town was made possible by the acquisition of this land at its cost to the City—not augmented by reason of any increase in value through assembly of the entire tract under single ownership—and by the City's grant of tax exemption. As a going community, Stuyvesant Town functions subject to supervision by governmental agencies. Upon dissolution, its surplus assets revert to the public."

After reviewing the constitutional and statutory provisions, Judge Fuld turned sharply on Judge Bromley's proposed limitations on the concept of state action.

"I cannot believe that the requirement of equal protection permits of such artificial qualifications or that the constitutional provisions designed to guarantee it are written in such gossamer phrases that formalities of that sort can obscure fundamentals."

Reviewing the decisions, he made a not altogether successful attempt to state a broader principle. At one point, he argued that a private group is subject to the equal-protection clause while it acts in a matter of high public interest with the sufferance and acquiescence of the state. Later, he stated that the constitutional provision would be applicable if private conduct "appears in an activity of public importance and if the State has accorded the transaction either the panoply of its authority or the weight of its power, interest and support." In the present case, Judge Fuld cited the following elements of state action in aid of discrimination:

1. The use of city powers in assembling land—eminent domain, and donation of land from vacated streets, amounting to 19% of the site.

2. City aid, by tax exemption on the improvements.

3. Approval of the contract by the Board of Estimate, with full knowledge of the proposed discrimination.

4. Exemption of Stuyvesant Town from the subsequent ordinance passed by the City Council forbidding discrimination in future similar projects.

The minority opinion also pointed out that discrimination would not be permitted if the City had used its powers to zone or lease the property, and argued that it was absurd to permit the same thing to be done because the city had employed different powers. The opinion also argued that, since the reference to state action was explicitly left out of the equal protection clause in the New York State Constitution, that clause was designed to provide broader protection against discrimination by certain private groups.

The closing statement in the minority opinion, first dealing with Metropolitan's argument that city officials had agreed to the discrimination and then summarizing on the constitutional aspects, can only be appreciated by being quoted in full.

"It is vehemently argued that to hold that Stuyvesant must discontinue its discriminatory practices would be to deprive respondents of an advantage implicit in their bargain with the City. The error of that argument is that the unseen protocol being relied upon was lawless from the start and may not be given effect. The argument overlooks that the constitutional rights of American citizens are involved and that such rights may not be used as pawns in driving bargains. Nor did respondents, by making a contract and a bargain, succeed in avoiding the restraints imposed by Federal and State Constitutions upon their rights and powers. As Mr. Justice Holmes observed in a somewhat different context, 'One whose rights, such as they are, are subject to State restriction, cannot remove them from the power of the State by making a contract about them.' (*Hudson County Water Co. v. McCarter*, 209 U. S. 349, 357.) In brief, the vice of the bargain asserted lies in its very effort to accomplish forbidden discrimination. In point of fact, the argument proves too much. If, as respondents claim, the City bargained for discrimination, then we have confirmation indisputable that state action was present. If, on the other hand, there was no such bargain, then respondents may not complain that they were led by the City to believe that they could practice discrimination.

"As an enterprise in urban redevelopment, Stuyvesant Town is a far cry from a privately built and privately run apartment house. More, its peculiar public features yield to those eligible as tenants tremendous advantages in modern housing and at rentals far below those charged in purely private developments. As citizens and residents of the City, Negroes as well as white people have contributed to the development. Those who have paid and will continue to pay should share in the benefits to be derived. Stuyvesant Town in its role as chosen instrument for this public purpose may not escape the obligations that accompany the privileges accorded to it.

"It is impossible to perceive or conjecture a benefit from the creation of a private barony in the heart of New York City, free of constitutional safeguards and devoted to undemocratic practices. It is impossible to balance the essence of democracy against fireproof buildings and well-kept lawns. Fortunately, the Constitutions, Federal and State, forbid our putting the former into the judicial scales just as they forbade the City officials from putting it upon the bargaining table. The mandate that there be equal protection of the laws, designed as a basic safeguard for all, binds us and respondents as well to put an end to this discrimination."

Remember When?

PHOTO COURTESY OF FEDERAL WORKS AGENCY

THIS photo dates back to September 1942, when Charleston, Ind., a quiet little 130-year-old town across the Ohio River from Louisville, Ky., had boomed in a few weeks to a community with 17,000 persons. First came the construction crews who built the great ordnance plants; then came the workers.

Despite the big war wages in those feverish days, lodgings were available at $2.50 per week and private parking facilities at 10 cents a day. Was that only seven years ago?

Legal Notes and Decisions

Prepared by NATIONAL INSTITUTE OF MUNICIPAL LAW OFFICERS
Charles S. Rhyne, General Counsel

Admissions Taxes—Levy of License Fee Challenged

Where theater sought to have ordinance of city levy license tax on charges for admission to places of amusement declared void as denying due process and equal protection, held that trial court properly overruled city's demurrer to complaint as bona fide controversy was presented. *City of Bessemer* v. *Bessemer Theaters, Inc.*, 39 So. (2d) 658 (Ala., Mar. 31, 1949).

Assessments—Benefited Property Bearing Full Cost

In action to enjoin street improvements, held that landowners whose property was specially benefitted and assessed for full cost of paving project could not object that as general taxpayers of city they had to bear portion of expenses of other different street-improvement projects. *Husson v. City of Oskaloosa*, 37 N. W. (2d) 310 (Iowa, May 3, 1949).

Disorderly Conduct—Breach of Peace As All Inclusive

Where disorderly-conduct ordinance was construed to include speech which aroused public dispute as part of breach of peace, held that such ordinance violated 14th Amendment of Federal Constitution. *Terminiello* v. *City of Chicago*, 69 Sup. Ct., 894 (May 16, 1949).

Electric Utilities—Necessity for Voters' Approval for Exclusion of Competition

In action to compel submission of ordinance to voters for approval, held that where city had contracted by ordinance with bondholders for exclusion of competition, such ordinance must first be approved by voters notwithstanding previous voters' approval of ordinance providing for municipal acquisition and operation of light, heat, and power system. *State ex rel. Hurd* v. *Blomstrom*, 37 N. W. (2d) 247 (S. D., Apr. 23, 1949).

Excise Tax—Retail Sales of Intoxicating Liquor—Validity of Ordinance Imposing

In action against city and county of San Francisco to enjoin collection of excise tax under ordinance, held that ordinance was invalid insofar as it attempted to impose excise tax on sale of intoxicating liquor in view of constitutional provision giving state exclusive right to license sale of intoxicating liquor. *Ainsworth* v. *Bryant*, 203 Pac. (2d) 836 (Cal. App., Mar. 16, 1949).

Firemen—Hours of Duty—Conflict Of Schedule with Statute

Where statute required hours of duty of city firemen within calendar day to be consecutive and provided for one "day" off in each week, held that schedule requiring duty from midnight to 3 a.m. and from 7 p.m. to midnight once each week violated statute, as well as schedule requiring day off of firemen to run from 3 a.m. to 3 a.m. *Booker* v. *Chief Engineer of Fire Department of Woburn*, 85 N. E. (2d) 766 (Mass., Apr. 27, 1949).

Food—Regulation Requiring Bakery Products to Be Wrapped

In action to have regulation requiring bread and other bakery products to be wrapped declared void, held that requirement was not invalid as applied to bread, rolls, biscuits, and muffins because of injurious effect which wrapping might have, but portion of regulation relating to "any other bakery products" which in opinion of board required protection was invalid as failing to set forth adequate standards to govern board action. *Druzik* v. *Board of Health of Haverhill*, 85 N. E. (2d) 232 (Mass., Apr. 4, 1949).

Garbage—Limitation on Collection—Validity of Ordinance

Where City of Pittsburgh garbage-disposal facilities were inadequate, held that ordinance prohibiting public collection from business or industrial locations except restaurants, was not unconstitutional as discriminatory or as creating an unreasonable classification. *Terenzio* v. *Devlin*, 65 Atl. (2d) 374 (Pa., Apr. 18, 1949).

Ice Cream—Prohibition of Sale On Streets

Where ordinance prohibited sale of ice cream products and soft drinks upon city streets, held that ordinance was void as effecting complete destruction of lawful occupation. *Frecker* v. *City of Dayton*, 85 N. E. (2d) 419 (Ohio App., Feb. 19, 1949).

Junk Yards—Restraining Operation And Regulating at Same Time

In action by city to enjoin operation of junk yard and automobile-wreckage shop, held that city was unauthorized to suppress such yards and at same time collect license fees therefrom. *City of Washington* v. *Mueller*, 218 S. W. (2d) 801 (Mo. App., Mar. 15, 1949).

Labor Unions—Public-Employees Anti-Strike Statute—Applicability To Union Officials

In action to enjoin interference with operation of street-railway system, held that Ohio public-employees anti-strike statute did not apply to union officials who interfered with such operation and that, therefore, the Act did not afford an adequate remedy at law, and denial of injunction restraining union officers was erroneous. *City of Cleveland* v. *Division 268 of Amalgamated Association of Street Electric Railway and Motor Coach Employees of Amer ca*, 85 N. E. (2d) 811 (Ohio App., Jan. 31, 1949).

Municipalities—Use of Name by Company—Unfair Competition

In action involving right of defendant to use name "Indian Hills" in title of company, held that as there was no element of competition between company and City of Indian Hills, city could not maintain exclusive right to name. *City of Indian Hills* v. *Indian Hills Development Company*, 219 S. W. (2d) 776 (Ky. App., Mar. 22, 1949). Reh. den. May 13, 1949.

Policemen—Accident While Pursuing Fugitive—City Liability

Where fugitive's car collided with plaintiff's automobile while being pursued by police vehicle, held that city was not liable for resulting damages. *Draper* v. *City of Los Angeles*, 205 Pac. (2d) 46 (Cal. App., Apr. 18, 1949).

Policemen—Impressing Private Citizen Into Service to Aid in Arrests—Contract of Employment Implied

Where private citizen was pressed into service by police officer while arresting criminals and was killed while so acting, held that contract of employment between town and private citizen resulted, entitling citizen to reasonable value of services and benefits of workmen's compensation laws. *Gulbrandson* v. *Town of Midland*, 36 N. W. (2d) 655 (S. D., Mar. 28, 1949).

Public Utilities—Sale of Natural Gas In Home Rule City—Power of State Commission to Fix Rates

In action to enjoin prosecution of petition before State Public Service Commission for new and higher rates for natural gas distributed by defendant in plaintiff home-rule city, held that state commission had jurisdiction notwithstanding provision in franchise ordinance giving city power to fix rates. *City of Big Rapids* v. *Michigan Consolidated Gas Company*, 37 N. W. (2d) 136 (Mich., Apr. 11, 1949).

Sewage—Intermunicipal Agreement For Treatment—Attempted Repudiation

In action by city to recover cost of treating village's sewage, held that contract of 1914 between city and village permitting connection with city sewer system in order to protect city's water supply could not be repudiated by city as long as city used same water supply and as long as village's connecting pipeline was sufficient to carry village's sewage. *City of New Brunswick* v. *Borough of Milltown*, 65 Atl. (2d) 621 (N. J. Super. Ct., Apr. 21, 1949).

Streets—Failure to Remove High Weeds and Brush at Intersection—Municipal Liability

In action against city to recover for personal injuries resulting from collision of two private cars at street intersection, held that city was not liable because view was partially obstructed at intersection from high weeds and brush which were not, of themselves, sufficient to have caused injury where persons using street employed reasonable care. *Owens* v. *Town of Bonnville*, 40 So. (2d) 158 (Miss., Apr. 25, 1949).

Taxation—Telephone Services—Validity of Ordinances Imposing and Requiring Company to Collect

In action against city to enjoin ordinances imposing purchaser-borne tax on telephone and other services, held that by statute city was authorized to levy tax on such services within corporate limits and require seller to account for tax to city treasurer, and under charter city was authorized to impose license taxes and fix amounts and make telephone company its collection agency for tax on sale of telephone and other services. *Peninsular Telephone Co.* v. *City of Clearwater*, 39 So. (2d) 473 (Fla., Mar. 25, 1949). *Reh. den.* Apr. 8, 1949.

Taxicabs—Power of City to Require Wearing of Distinctive Cap By Drivers Upheld

In appeal from conviction of City of Concord ordinance requiring taxicab drivers to wear distinctive cap, help that such requirement was not unreasonable nor arbitrary. *State* v. *Stallings*, 52 S. E. (2d) 901 (N. C., Apr. 13, 1949).

Water Works—Validity of Statute Authorizing City to Issue Bonds Without Assent of Voters

Where statutes authorized any incorporated city or town to build, purchase, construct, improve, enlarge, and extend water supply systems and to issue revenue bonds payable solely from revenue derived from operation of water works system, held that statutes were void since in violation of provisions of constitution prohibiting indebtedness of political subdivisions without assent of voters. *Burch* v. *City of Pauls Valley*, 201 Pac. (2d) 247 (Okla., Dec. 21, 1948).

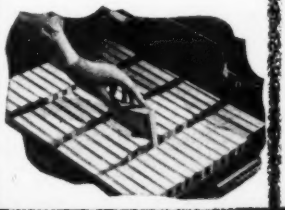
Municipal, County, State, Federal agencies now using Recordak microfilming...

...to record documents economically

There's a complete line of Recordak Microfilmers to meet varying requirements . . . to assure easy, trouble-free operation at minimum cost. Imagine being able to record documents for a fraction of a cent apiece . . . each in a second or less. And there's this important feature, too: You can make large reference-size prints directly from your microfilm records—quickly, economically.

...to de-bulk files 98%

With Recordak microfilming you can record thousands of documents on a roll of film that's no larger than the palm of your hand . . . that requires only 2% of the filing space the bulky paper originals would require. Reference is easier, too . . . for your microfilm copies can be kept ready for immediate review in the Recordak Film Reader . . . which enlarges each tiny image sharp and clear.



...to get increased protection

Nothing is omitted, nothing is incorrectly transcribed when you employ Recordak microfilming. Your documents are recorded with photographic accuracy on compact rolls of microfilm . . . which can't be tampered with or altered without detection. Copies can be made, if you wish—for the active reference files...for vault-storage...and maximum protection against fire, loss, theft.

Typical cross-section of documents now being copied with Recordak

Archive documents	Charters	Employers' contribution reports	Payroll and time receipts
Assignments	Civil service examination papers	Engineering drawings	Purchase records
Authorization records	Contracts	Income tax returns	Rare library volumes
Automobile registrations	Corporate filings	Medical case-history records	Sales tax returns
Bank examination reports	Daily police reports	Misc. file records	Vital statistics
Bonds	Decrees admitting wills to probate	Mortgages	Vouchers
Building permits	Deeds	Papers of incorporation	Water tax receipts
Cancelled checks			Wills
Census records			

Learn in detail how you can adapt Recordak microfilming to your present routines—quickly, economically. Write Recordak Corporation (*Subsidiary of Eastman Kodak Company*), 350 Madison Avenue, New York 17, N. Y.

"Recordak" is a trade-mark

RECORDAK
(Subsidiary of Eastman Kodak Company)

originator of modern microfilming—and its application to government routines

MORE MONEY FROM THREE SIDES!

Get *NEW* Revenue From Your Parking Meters

Here's a profitable plan that has been tested and proven to give your city added revenue without trouble or expense. Meterad Corporation installs, services, and maintains these attractive, patented Meterads and pays your city a handsome percentage of the monthly receipts. Each Meterad is fully protected by insurance against public liability claims and is patented to avoid infringements. Investigate this attractive source of income which is yours without effort or expense. Write today.

EACH METERAD PATENTED AND INSURED AGAINST PUBLIC LIABILITY.

NO RISK — NO EXPENSE — NO TROUBLE

Meterad **CORPORATION**

P. O. BOX 351 PASADENA, TEXAS

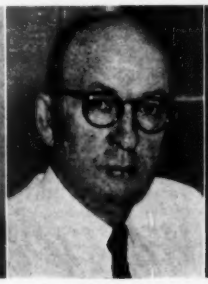
Chattanooga Power Board's Big Mary

This new 20-ton, low-bed, heavy-duty trailer for handling transformers and other machinery for the Electric Power Board of Chattanooga, Tenn., is an eight-wheel Fontaine trailer, made by the Fontaine Truck Equipment Co., of Birmingham, Ala. It is attached to a 20,000-pound g.v.w. White truck known to the EPB as Big Mary. Prior to the attachment between Big Mary and Fontaine, a new bed of ½-inch steel for the truck was fabricated in the EPB shop. The truck has a heavy-duty winch and derrick and, with trailer, handles almost any heavy equipment.

Recent City Manager Appointments

The following portraits are of city managers whose appointments have been announced in recent issues of *The American City*. New listings are on page 155.

Robert Peart
Garden City, Kans.



G. D. Fairtrace
Tyler, Texas

J. S. Ellingson
Edinburg, Texas

Robert H. McGregor
Dormont, Pa.

Peter F. Roan
Mexico, Mo.

R. C. Snyder
Marion, N. C.

H. H. Kramer
Traverse City, Mich.

W. H. Lange
Norway, Mich.

G. H. Kranenberg, Jr.
Grand Rapids, Mich.

C. O. Martin
Napa, Calif.

E. Alan Webster
Concordia, Kans.

Carl Wirsching
Hawthorne, Calif.

Donald P. Wolfer
Albany, Ga.

G. O. Summers
Longview, Texas

Edwin H. Allen, Jr.
Cameron, Mo.

J. H. Bailey
Sewickley, Pa.

R. B. Weiss
South Berwick, Maine

S. C. McIntyre, Jr.
Salisbury, N. C.

G. R. Hubbard
Durango, Colo.

Newell V. Jenkins
Slater, Mo.

If your city is not metered...

or if your present meters are obsolete...

or if your traffic flow needs greater guidance...

Ask to see these valuable CONTROL DEVICES

MILLER
The parking meter that is first choice all over America.
AUTOMATON
The amazing new parking meter that actually winds itself.
SCHOOL
ZONE
Duncan Safety FLASHERS
The all-electric traffic sign that commands greater attention and obedience.

Here are traffic control devices that set the pace others follow. Write today for illustrated catalog and details on how easily they can be purchased.

DUNCAN PARKING METER CORP.

835 No. Wood Street, Chicago 22, Illinois

When writing Duncan Parking Meter Corp., please mention THE AMERICAN CITY

The Municipal Bond Market

Shift away from property tax increases the complexity of local finance study

By FREDERICK L. BIRD
Director of Municipal Research
Dun and Bradstreet, Inc.

SEVERAL changes have occurred in local-government revenues in recent years that have important implications. They relate not merely to the increase that has been necessitated by accelerated population growth and the elevated price level, but to a rather conspicuous shifting in the sources. *Government Revenue in 1948*, the most recent of the valuable and timely publications of the Government Division of the Bureau of the Census, discloses these changes on a nation-wide basis.

Taking the various influencing factors into account, the increase in local-government general revenues from 1942 to 1948 was less than might have been expected—from $7,040,000,000 to $11,053,000,000, or 58.0%. The change was far from uniform, moreover, for the various classes of local governments. School districts showed the largest increase, with 75.7%; counties were next, with 58.4%; cities (including incorporated villages, boroughs, etc.) were third with 49.1%; while other local governments, such as special districts and townships, experienced the least increase, 35.2%.

If the increase is evaluated in terms of population and post-war dollars, it will be found, interestingly enough, to reach the vanishing point. On a per capita basis, the increase for all local governments was from $52.27 in 1942 to $75.41 in 1948, or 44.2%. But the 1948 dollar was worth only 68% of the 1942 dollar in purchasing power, according to the consumers' price index of the U. S. Bureau of Labor Statistics. Viewed in this light, local governments received only $51.28 per capita in 1942 dollars in 1948, 1.9% less than in 1942. While the comparison is not entirely fair because one important item in municipal expense, the cost of borrowed money, is lower than in 1942, it does suggest that the demand for more revenues by local governments is based to some extent on need.

Actually, local governments managed to carry on in 1948 with a slightly smaller percentage of the national income than in 1942. They received for general government purposes 4.9% of the $226,000,000,000 total in 1948, compared with 5.1% of the $137,000,000,000 total in the earlier year.

A look at where the money came from in 1948 discloses some rather striking changes in the six years from 1942 in the relative importance of sources. Most conspicuous was the ground lost by the property tax. While it continued as the largest single source of revenue, it accounted for only 53.0% of the local-government total in 1948, compared with 60.7% in 1942. In dollar amount it increased only 37.0% from 1942 to 1948, while total revenues were rising 58.0%. Its relation to the capital value on which it is based has quite obviously declined.

To fill the gap left by the lagging property tax, aid received from other governments is the most notable contributor, supplying 29.6% of total general revenues in 1948, compared with 25.5% in 1942. This aid, mainly in state grants and shared taxes, bolstered the 1948 revenues of the various classes of local governments in divergent proportions, providing 40.6% of the revenues of school districts, 29.3% of the revenues of counties, 26.3% of the revenues of cities, and 3.8% of the revenues of other local governments.

Local taxes other than property taxes, although they have become vital revenue factors in some areas, have not yet assumed a major role in financing local government nationally. They accounted for 4.2% of total general revenues in 1948, however, nearly twice the approximately 2.3% in 1942. Sales, use, and gross-receipts taxes, supplying 3.7% in 1948, were the main contributor—New York City's revenues from this source representing about one-third of all such taxes. Local income taxes, introduced by Philadelphia in 1939, have not had sufficiently wide adoption to make them a significant local-revenue factor nationally. They represented 0.5% of total revenue in 1948, compared with 0.4% in 1942. Licenses and permits, traditional minor sources of local, non-tax revenue, merely held their own, contributing 2.7% of the national total in both years. The increasing use of charges for services formerly financed from general revenues, however, is beginning to make an impression on the local revenue system, revenues classed as "charges and miscellaneous" by the Division of Governments rising from 8.7% of the total in 1942 to 10.5% in 1948.

Reappraisal Needed of New Revenue Sources

These over-all figures for the nation obviously smooth over the increasing divergences that are developing in the revenue systems of local governments through local and even state-wide experimentation and the changing fiscal-aid policies of some of the states. But they do disclose that such changes, in the aggregate, have produced a rather pronounced shift away from the property tax and toward, variously, new local taxes, service charges, and more state assistance. With 47% of local-government general revenue now coming from other sources than the property tax, it is clear that the study of local-government finance has become more complex. While some of the changes are undoubtedly constructive, others are potentially hazardous for municipal financial stability—particularly those which involve increased dependence on local and shared state taxes that are especially sensitive to the business cycle. In any event, the local-government revenue system is undergoing transition that needs appraisal not merely of its immediate increase in productivity but of its long-range dependability.

Recent City Manager Appointments

GUY ANCELL has been appointed manager of Alexandria, Va. He was formerly manager of Orange, 1932-33; Hopewell, 1934-44; Covington, 1944-46; Staunton, 1946-48; Portsmouth, 1948-49.

ROBERT O. BAILEY has been appointed manager of Guthrie, Okla. He was formerly manager of Stigler, Okla., 1948-49.

KNOWLAND L. BRODE has been appointed manager of Durant, Okla. He was formerly manager of Newton, 1931-39, and Lebanon, Kans., 1948.

LEON J. CARBER has been appointed manager of Chandler, Okla. He was formerly city engineer of Walters, Okla.

KENNETH R. CARD has been appointed manager of Colorado Springs, Colo. He was formerly convention manager of the Chamber of Commerce at Colorado Springs.

D. CLAYTON CLOW has been appointed city manager of Hardwick, Vt.

CASEY FANNIN has been appointed city manager of Odessa, Texas. He was formerly manager of Pittsburgh, Texas, 1948-49.

C. LELAND GUNN has been appointed city manager of Buchanan, Mich. He formerly served as city planning engineer of Birmingham, Mich.

VINCENT W. KIRBY has been appointed city manager of Melbourne, Fla.

ALLEN J. KRONBACH has been appointed city manager of Mount Pleasant, Mich. He was assistant manager of Mount Pleasant.

C. B. MCCLURE has been appointed city manager of Castleton, Vt.

H. B. NABERS has been appointed city manager of Waxahachie, Texas. He was formerly assistant manager of Wichita Falls, Texas.

ERNEST L. NEUMANN has been appointed city manager of Petoskey, Mich. He was manager of Manistee, Mich., 1947-1949.

CHARLES A. NORTH has been appointed city manager of Neosho, Mo.

JAMES M. ORDWAY has been appointed city manager of Brownville, Maine.

W. D. PITTSER has been appointed acting city manager of Liberal, Kans. He was formerly assistant city manager and utility superintendent of Liberal.

RUSSELL W. RINK has been appointed city manager of Palm Springs, Calif. He was formerly manager of Coronado, Calif., and assistant manager of San Diego.

DONALD P. ROSS has been appointed city manager of Isle Maligne, Quebec, Canada.

HAROLD K. SCHONE, civil engineer, Kansas City, Kans., has been appointed city manager of Harbor Springs, Mich.

I. G. VASS has been appointed city manager of Portsmouth, Va., effective Oct. 1, 1949. He was formerly manager of Galax, 1922-28, and Waynesboro, Va., 1928-49.

CLARENCE E. RIDLEY
Director
International City Managers' Association

it DIGS...it LOADS at tremendous savings

the DEMPSTER DIGGSTER

Whether you need it for excavation work or loading from stockpiles or both, you need the new low production cost of the Dempster-Diggster. Here is the only small shovel that works on a hydraulic, simultaneous or independent crowd and hoist action and completely eliminates tractive effort in loading with wheels. Its variable crowd action at any dipper position means the Dempster-Diggster can dig lower . . . 15 inches below grade. Exclusive hoisting action means it can dig higher . . . digs out a 15 ft. bank. It's the only small shovel featuring such speed and mobility . . . travels at truck speeds on the road . . . gets in tight places on big jobs, freeing large shovels for heavier work. Ideal for the small and medium size excavation jobs yet powerful and fast enough for big jobs.

Stockpiling or loading work is easy for the DEMPSTER-DIGGSTER. Its speed . . . its 15 ft. turning radius . . . its extraordinary dumping reach help the Dempster-Diggster complete the average loading job in an amazingly short time. Dempster-Diggster buckets are easily interchangeable and are availab'e in three sizes. 1 cu. yd. (heaped) with hardened steel teeth for digging . . . 1½ and 2 cu. yd. for loading and stockpiling work. Power is supplied by a heavy duty gasoline or diesel engine. Hoisting, crowding, steering and braking are all 100% hydraulic. For complete information, write today for Folder Number 8154.

Large photo above shows Dempster-Diggster loading crushed stone. Note how independent crowd and hoist action permits bucket to follow the slope of the material. At right, top: Digging out high bank. Right, center: Closeup of 1 cu. yd. (heaped) digging bucket. Right, bottom: Dumping crushed stone into truck.

DEMPSTER BROTHERS INC.

8109 Dempster Bldg., Knoxville 17, Tenn.

Conventions—When and Where

Conventions listed this month for the first time are indicated by an asterisk (*)

Oct. 5-7—Dickinson, N. D.
North Dakota Water and Sewage Works Conference. Annual Convention (Hotel St. Charles). Sec.-Treas., Jerome H. Svore, State Health Dept., Bismarck, N. D.

Oct. 6-7—Burlington, Iowa
American Water Works Association—Iowa Section. Annual Meeting (Hotel Burlington). Sec., H. V. Pedersen, Supt. Water Works, Municipal Bldg., Marshalltown, Iowa.

Oct. 6-8—Winnipeg, Manitoba, Can.
National Citizens' Planning Conference of Canada. Annual Meeting (Hotel Fort Garry). Exec. Dir., Alan H. Armstrong, 56 Lyon St., Ottawa, Canada.

Oct. 8—Livingston, N. J.
New Jersey Sewage Works Association. Annual Outing (Doerr's Grove). Sec.-Treas., Michael S. Kachorsky, Box 283, Manville, N. J.

Oct. 9-11—Roanoke, Va.
League of Virginia Municipalities. Annual Meeting (Hotel Roanoke). Exec. Sec., Harold I. Baumes, 902 Travelers Bldg., Richmond, Va.

Oct. 9-12—Oklahoma City, Okla.
American Water Works Association—Southwest Section. Annual Meeting (Hotel Biltmore). Sec., L. A. Jackson, Mgr., Municipal Water Works, Municipal Auditorium, Little Rock, Ark.

Oct. 10-12—Springfield, Ill.
Illinois Municipal League. Annual Convention (Hotel Leland). Exec. Dir., A. L. Sargent, 537 South 4th St., Springfield, Ill.

Oct. 10-12—Cleveland, Ohio
American Society of Planning Officials. Annual Meeting (Hotel Statler). Exec. Dir., Walter H. Blucher, 1313 E. 60th St., Chicago 37, Ill.

Oct. 10-13—Pittsburgh, Pa.
International Municipal Signal Association. Annual Convention (Hotel William Penn). Sec., Irvin Shulsinger, 8 E. 41st St., New York, N. Y.

Oct. 10-14—San Antonio, Texas
American Association of State Highway Officials. Annual Meeting (Hotel Gunter). Exec. Sec., Hal H. Hale, 1220 National Press Bldg., Washington 4, D. C.

Oct. 11-13—Milwaukee, Wis.
American Water Works Association—Wisconsin Section. Annual Meeting (Hotel Schroeder). Exec. Sec., L. A. Smith, Supt. of Water Works and Sewerage, City Hall, Madison 3.

Oct. 12-13—Des Moines, Iowa
League of Iowa Municipalities. Annual Meeting (Hotel Fort Des Moines). Sec., Max A. Conrad, Tama Bldg., Burlington, Iowa.

Oct. 12-19—Buenos Aires, Argentina
Third Inter-American Municipal Historical Congress. Annual Congress. Sec. Gen., Jose L. Franco, Instituto Interamericano de Historia Municipal E Institucional, Cuba 316, La Habana, Cuba.

Oct. 16-18—Wichita, Kans.
Kansas Association of Municipal Utilities. Annual Meeting (Hotel Broadview). Sec.-Treas., E. P. Schowalter, Board of Public Utilities, Kansas City 14, Kans.

Oct. 16-19—Seattle, Wash.
American Chamber of Commerce Executives. Annual Conference (Olympic and New Washington Hotels). Exec. Sec.-Treas., Elizabeth Glenn, 1615 H St., NW., Washington 6, D. C.

Oct. 17-19—Pittsburgh, Pa.
Water Conference of the Engineers' Society of Western Pennsylvania. Tenth Annual Conference (Hotel William Penn). Chairman, H. M. Olson, Hotel William Penn, Pittsburgh, Pa.

Oct. 17-20—Boston, Mass.
Federation of Sewage Works Associations, and New England Sewage Works Association. Joint Meeting (Hotel Statler). Exec. Sec., W. H. Wisely, 323 Illinois Bldg., Champaign, Ill.

***Oct. 18-19—Lewiston, Me.**
Maine Municipal Association. Annual Meeting (City Hall). Exec. Sec., Leigh Webber, 97 Water St., Hallowell, Maine.

Oct. 18-20—Madison, Wis.
League of Wisconsin Municipalities. Annual Convention (Hotel Loraine). Exec. Sec., Frederick N. MacMillan, 30 East Johnson St., Madison 3, Wis.

Oct. 19-21—Jackson, Miss.
American Water Works Association — Alabama-Mississippi Section. Annual Meeting. Sec., John L. Snow, Layne-Central Co., 601 First National Bank Bldg., Montgomery 4, Ala.

Oct. 19-21—Winston Salem, N. C.
North Carolina League of Municipalities. Annual Convention (Hotel Robert E. Lee). Exec. Sec., Mrs. Davetta Steed, 1809 Raleigh Bldg., Raleigh, N. C.

Oct. 20-21—Brookline, Mass.
Massachusetts Federation of Planning Boards. Annual Meeting (Hotel Beaconsfield). Miss M. T. Downey, Clerk, Room 43, City Hall, Boston, Mass.

Oct. 23-26—San Francisco, Calif.
League of California Cities. Annual Meeting. Exec. Dir., Richard Graves, Hotel Claremont, Berkeley, Calif.

Oct. 24-25—Pocono Manor, Pa.
Pennsylvania Municipal Authorities Association. Annual Conference (Pocono Manor Inn). Asst. Sec., Charles F. LeeDecker, 103 Sparks Bldg., State College, Pa.

Oct. 23-26—Cleveland, Ohio
National Institute of Governmental Purchasing. Annual Meeting. (Hotel Cleveland). Exec. Dir., Albert H. Hall, 730 Jackson Place, NW., Washington, D. C.

Oct. 24-25—Roanoke, Va.
American Water Works Association — Virginia Section. Annual Convention (Hotel Roanoke). Exec. Sec., W. H. Shewbridge, Room 713, State Office Bldg., Richmond, Va.

Oct. 24-27—San Francisco, Calif.
Civil Service Assembly. Annual Conference (Hotel Palace). Dir., J. J. Donovan, 1313 E. 60th St., Chicago 37, Ill.

Oct. 24-27—Galveston, Texas
League of Texas Municipalities. Annual Meeting (Hotel Buccaneer). Exec. Dir., E. E. McAdams, 2220 Guadalupe St., Austin 21, Texas.

Oct. 24-27—Coronado, Calif.
National Association of Assessing Officers. Annual Conference (Hotel Del Coronado). Exec. Dir., A. W. Noonan, 1313 E. 60th St., Chicago 37, Ill.

Oct. 24-28—New York, N. Y.
American Public Health Association. Annual Meeting (Hotels Statler and New Yorker). Exec. Sec., Dr. Reginald M. Atwater, 1790 Broadway, New York, N. Y.

Oct. 24-28—Chicago, Ill.
National Safety Congress and Exposition of the National Safety Council. Annual Congress (Hotels Stevens, Congress, Palmer House, Sherman, Morrison). Gen. Sec., R. L. Forney, 20 North Wacker Drive, Chicago 6, Ill.

Oct. 25-28—Atlantic City, N. J.
Pennsylvania Water Works Association. Annual Meeting (Hotel Claridge). Sec.-Treas., C. M. Hartman, 510 Telegraph Bldg., Harrisburg, Pa.

Oct. 26-28—Sacramento, Calif.
American Water Works Association—California Section. Annual Meeting. Sec., H. C. Medbery, Water Dept., 425 Mason St., San Francisco, Calif.

Oct. 26-28—Joplin, Mo.
Missouri Municipal League. Annual Meeting (Hotel Connor). Exec. Dir., Bruce J. Carl, 212-214 Guitar Bldg., Columbia, Mo.

Oct. 27-29—St. Louis, Mo.
Illinois Association of Park Districts. Annual Convention (Hotel Statler). Exec. Sec., Marjorie M. Dickinson, 401½ East Capital, Springfield, Ill.

Oct. 31-Nov. 2—Lexington, Ky.
American Water Works Association—Kentucky-Tennessee Section. Annual Meeting (Hotels Phoenix and Lafayette). Sec.-Treas., R. P. Farrell, 420 Sixth Ave., No. Nashville 3, Tenn.

Oct. 31-Nov. 3—Washington, D. C.
Building Officials' Conference of America. Annual Convention (Hotel Wardman Park). Exec. Sec., George Slenker, Building Inspector, 626 Linden St., Allentown, Pa.

Nov. 2-4—Washington, D. C.
American Society of Civil Engineers. Annual Meeting (Hotel Statler). Exec. Sec., Col. William N. Carey, 33 W. 39th St., New York 18, N. Y.

Nov. 2-4—Washington, D. C.
American Water Works Association—Chesapeake Section. Annual Meeting (Hotel Wardman Park). Sec., Carl J. Lauter, 5902 Dalecarlia Pl., NW., Washington 16, D. C.

Nov. 3-4—Dayton, Ohio
American Water Works Association—Ohio Section. Annual Conference. Sec., F. P. Fischer, Sales Engr., Wallace & Tiernan Co., Inc., 812 Perry Payne Bldg., Cleveland 13, Ohio.

***Nov. 4-5—Parkersburg, W. Va.**
West Virginia League of Municipalities. Annual Convention (City Hall). Exec. Sec., Pat E. Maloney, Box 2851, Charleston, W. Va.

Nov. 7-9—Southern Pines, N. C.
American Water Works Association—North Carolina Section, and North Carolina Sewage Works Association. Joint Meeting (Hotel Highland Pines). Sec.-Treas., E. C. Hubbard, care of State Board of Health, Raleigh, N. C.

***Nov. 9-10—Los Angeles, Calif.**
Western Governmental Research Association. Annual Meeting (Hotel Hollywood Roosevelt). Exec. Sec., John C. Bollens, 117 University Library, Berkeley 4, Calif.

Nov. 11-13—Yuma, Ariz.
American Water Works Association—Arizona Section. Fall Conference (Hotel San Carlos). Exec. Sec., Mrs. Helen Rotthaus, Bureau of Sanitation, Phoenix, Ariz.

Nov. 13-16—Boston, Mass.
National Association of Housing Officials. Annual Meeting (Copley Plaza). Exec. Dir., John M. Ducey, 1313 East 60th St., Chicago 37, Ill.

Nov. 14-16—Orlando, Fla.
American Water Works Association — Florida Section. Annual Meeting (Hotel Orange Court). Sec., A. E. Williamson, Jr., P. O. Box 1431, Daytona Beach, Fla.

Nov. 15—New York, N. Y.
Regional Plan Association, Inc. Fourth Regional Plan Community Conference (Hotel Roosevelt). Exec. Vice-Pres., C. McKim Norton, 205 E. 42nd St., New York, N. Y.

Nov. 15-16—Little Rock, Ark.
Arkansas Municipal League. Annual Convention (Hotel Marion). Exec. Dir., Glenn G. Zimmerman, 401 Main St., North Little Rock, Ark.

Nov. 17-19—Atlantic City, N. J.
American Water Works Association — New Jersey Section. Fall Meeting (Hotel Madison). Sec., C. B. Tygert, Wallace & Tiernan Co., Inc., Box 178, Newark 1, N. J.

Alfco TWIN AUTOMATIC PARKING METERS

"THEY HAVE ABSOLUTELY SOLVED OUR PARKING AND TRAFFIC PROBLEMS"

— MAYOR WALTER M. NEWTON
BENNETTSVILLE, S. C.

MAYOR Newton's statement is characteristic of many others. From all over America—wherever Alfco Twin Automatic Parking Meters have been installed—come favorable reports about the economy, the convenience, and the added safety factors of the Alfco Twin Automatic Parking Meters.

Only half as many meters to install . . . only half as many collections to make . . . only half the trouble to service and maintain—yet the Alfco Twins do a full-size job of parking control at only about half the cost of single meters! The Alfco Twin Meter method of parking bumper-to-bumper simplifies parking in busy downtown areas . . . more space for entry and exit . . . less danger of locked bumpers or dented fenders because the necessity of cramped maneuvering is eliminated.

Yes, Alfco Twin Automatic Parking Meters are winning new friends—all over America! Write today for full particulars and free illustrated literature.

Models Available To Suit Your Needs

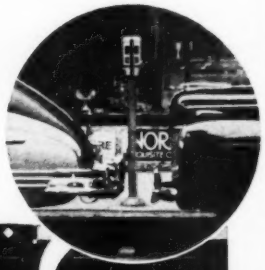
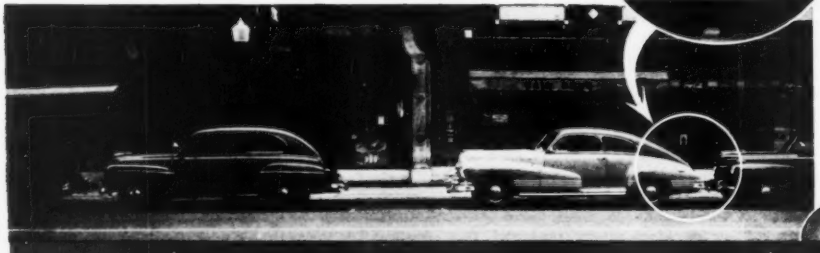


Illustration shows how Bennettsville, S. C., applies the original Alfco Twin method of bumper-to-bumper parking.



INTERNATIONAL METERS, INC.

SUBSIDIARY OF
AMERICAN-LAFRANCE-FOAMITE Corporation
ELMIRA NEW YORK U.S.A.

ALFCO

***Nov. 28-Dec. 1—Stillwater, Okla.**
OKLAHOMA WATER AND SEWAGE CONFERENCE. Short Course and Annual Meeting (Oklahoma A. and M. College). Sec.-Treas., H. J. Darcey, 3400 N. Eastern, Oklahoma City, Okla.

Nov. 27-28—St. Paul, Minn.
NATIONAL ASSOCIATION OF CIVIC SECRETARIES. Annual Conference (Hotel Lowry). Sec., Hazelle B. Scott, Hotel William Penn, Pittsburgh, Pa.

Nov. 27-Dec. 2—New York, N. Y.
AMERICAN SOCIETY OF MECHANICAL ENGINEERS. Annual Meeting (Hotel Statler). Sec., C. E. Davies, 29 W. 39th St., New York, N. Y.

Nov. 28-30—St. Paul, Minn.
NATIONAL MUNICIPAL LEAGUE. Annual Conference on Government (Hotel Lowry). Exec. Sec., Alfred Willoughby, 299 Broadway, New York 7, N. Y.

Nov. 30-Dec. 2—Cleveland, Ohio
AMERICAN MUNICIPAL ASSOCIATION. Annual Meeting (Hotel Cleveland). Exec. Dir., Carl H. Chatters, 1313 E. 60th St., Chicago 37, Ill.

Nov. 30-Dec. 2—Atlantic City, N. J.
NEW JERSEY STATE LEAGUE OF MUNICIPALITIES. Annual Conference (Chalfonte-Haddon Hall). Sec., Madeleine S. Frost, 1212 Trenton Trust Bldg., Trenton 8, N. J.

Dec. 1-3—Washington, D. C.
AMERICAN PUBLIC WELFARE ASSOCIATION. Annual Meeting (Hotel Statler). Acting Dir., Guy R. Justis, 1313 E. 60th St., Chicago 37, Ill.

Dec. 4-8—Palm Beach, Fla.
INTERNATIONAL CITY MANAGERS' ASSOCIATION. Annual Conference (Hotel Whitehall). Exec. Dir., Clarence E. Ridley, 1313 E. 60th St., Chicago 37, Ill.

Dec. 5-7—Kansas City, Mo.
NATIONAL ASSOCIATION OF MUNICIPAL LAW OFFICERS. Annual Conference (Hotel Muehlebach). General Counsel, Charles S. Rhyne, 730 Jackson Place, NW., Washington, D. C.

Dec. 5-7—Albany, Ga.
AMERICAN WATER WORKS ASSOCIATION—Southeastern Section. Annual Meeting (Hotel Gordon). Sec.-Treas., T. A. Kolb, 433 Wade Hampton Bldg., Columbia, S. C.

Dec. 12-16—Washington, D. C.
HIGHWAY RESEARCH BOARD. Annual Meeting (National Academy of Sciences Building). Exec. Dir., Roy W. Crum, 2101 Constitution Ave., NW., Washington 25, D. C.

***Jan. 15-20—Chicago, Ill.**
ASSOCIATED EQUIPMENT DISTRIBUTORS. Annual Meeting (Hotel Stevens). Exec. Sec., F. G. Knight, 360 N. Michigan Ave., Chicago, Ill.

Jan. 17—New York, N. Y.
AMERICAN WATER WORKS ASSOCIATION—New York Section. Winter Luncheon Meeting (Hotel Statler). Sec.-Treas., R. K. Blanchard, 50 W. 50th St., New York, N. Y.

***Feb. 1-4—Cincinnati, Ohio**
COMMUNITY CHESTS AND COUNCILS. Annual Convention (Hotel Netherland Plaza). Bus. Mgr., George A. Devine, 155 E. 44th St., New York, N. Y.

***Feb. 6-7—St. Louis, Md.**
ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS. Annual Meeting (Hotel Statler). Sec.-Treas., W. K. Parr, 1224 E. Eng. Bldg., Ann Arbor, Mich.

***Feb. 6-8—New York, N. Y.**
ASSOCIATION OF TOWNS OF THE STATE OF NEW YORK. Annual Meeting (Hotel Commodore). Exec. Sec., Edward F. N. Uthe, 91 State St., Albany, N. Y.

***Feb. 21-23—New York, N. Y.**
ASSOCIATION OF HIGHWAY OFFICIALS OF THE NORTH ATLANTIC STATES. Annual Meeting (Hotel Statler). Sec.-Treas., A. Lee Grover, State House Annex, Trenton, N. J.

***March 6-9—Cincinnati, Ohio**
AMERICAN ROADBUILDERS' ASSOCIATION. Annual Meeting (Hotel Netherland Plaza). Engr. Dir., Charles M. Upham, International Bldg., Washington 4, D. C.

***Apr. 10-13—Lafayette, Ind.**
PURDUE ROAD SCHOOL. Annual Meeting (Memorial Union Bldg.). Exec. Chrmn., Ben H. Petty, School of Civil Eng., Purdue Univ., W. Lafayette, Ind.

Norfolk Redevelopment

(*Continued from page* 81)

city will necessitate a thorough and careful re-examination of all previously conceived plans. Only thus will it proceed with a minimum of confusion and needless expenditure of public funds.

Norfolk's initial application for redevelopment funds contemplates a $4,000,000 loan and a $3,000,000 grant, on the theory that the re-use value of slum land will not exceed 25% of the total expenditures incurred in its acquisition and clearance. The city's contribution would amount to $1,500,000, to be spent in equipping the cleared sites with new streets, utilities, and community facilities required by the new uses specified in the redevelopment plan. The new Act favors those cities which are taking the initiative in modernizing their codes and statutes governing building and land use. Viewed in this light, Norfolk's chances of receiving the full amount requested are greatly enhanced by its adoption of a new building code a year ago, by the fact that the City Planning Commission is presently conducting the last of a year of public hearings on a newly drafted zoning ordinance, and by the prospect of early adoption by the city of a new minimum-housing code.

The slum areas of Norfolk are predominantly Negro, and it is worth noting that the great majority of the entire low-rent housing and redevelopment program is directed toward the satisfaction of the needs of the Negro group, despite the fact that they constitute less than one third of the total population.

Whole City Will Be Benefited

Norfolk's redevelopment program has concerned itself primarily with the city's slum areas. However, their redevelopment has been planned in terms of the best interests of the city as a whole. The program goes far beyond mere elimination of slums and blight: in the absence of a comprehensive overall city plan, it has suggested a pattern of development which will readily adapt itself to any foreseeable future changes. Within its scope, it has brought major highways into the heart of the city and made maximum reasonable provision for industry, shopping, traffic, and parking. The residential areas which will result will be bounded, but not traversed, by major traffic arteries, which will mean increased safety for the children residing in them and increased peace of mind for their parents. Some of the new neighborhoods will be equipped with adequate educational and recreational facilities, while in those in which this will not prove possible at this time, ample land will be set aside to receive such facilities when funds for their erection become available.

The Norfolk redevelopment program has formulated the ways of achieving the physical framework of an entirely new pattern of urban living. The "suitable living environment," the realization of which is part of the national policy under the new Act, is recognized to embrace more than the area bounded by the four walls of the individual home, more even than the larger area occupied by the housing project. Its realization is sought through the development of integrated residential neighborhoods. The great significance of the new Housing Act is that it makes such neighborhoods possible, and that it gives every community which is ready to make a determined effort to coordinate its redevelopment activities within an over-all plan the opportunity to create them.

Fire Alarm Batteries

(*Continued from page* 121)

side, distilled water should be used unless it is certain that tap water is suitable.

Sometimes it may appear that certain cells need acid rather than water, as they may seem to be consistently low in gravity when fully charged. The addition of acid is rarely necessary, however, since in normal operation it is not lost from the cells. Only in case of spillage, excessive charging which causes considerable spraying of acid, etc., can it be lost. It is best to call on the manufacturer's representative for advice if it is felt that an acid addition is required.

If for any reason a lead-acid battery stands idle before installation or is removed from service for any length of time, it should be given an equalizing charge. This charge should be repeated monthly during the stand period. The battery should be given a thorough equalizing charge before being returned to service.

The amount (up to 24 hours) that a properly operated battery is discharged during emergency operation is so small that it may be re-charged in a short time by adjusting the rectifier to supply current to the battery at a higher rate. When batteries have been restored to a fully charged condition, the rectifier output should be returned to normal.

From the discussion above, it readily can be seen that the installation and maintenance of the storage battery in alarm systems is a comparatively simple operation. However, the recommended maintenance procedures, simple as they are, must be religiously followed out, or the result may be an inoperative alarm system when it is needed most.

Would you do without SALT,

to keep within your household budget? No! . . . because salt costs so little and does so much. That's the way it is with

Management Information Service

which costs as little in relation to your city's budget, as the salt on your table in relation to your food budget—yet it is so vital to the efficient operation of a city or town that 535 mayors and managers consider it indispensable!

Mr. Mayor or Manager—any time you are faced with a particularly difficult municipal problem on which you need expert help, and need it AT ONCE—if your city is a subscriber to MANAGEMENT INFORMATION SERVICE all youdo is write, wire, or phone us—and the answer is on its way to you the same day. In addition to this invaluable consultation privilege,

MANAGEMENT INFORMATION SERVICE

Established in 1945

Also Includes:

1. Monthly journal on municipal administration. Published since 1919.
2. Municipal Year Book, 582 pages. Published since 1934.
3. Special monthly information reports. Ten of the 68 reports issued to date are:

- Methods of Reporting to the City Council
- Parking Meter Administration
- Pay Rates for Selected City Jobs (Jan. and July)
- Preparation of Work Programs and Budget Estimates
- Formula for Installation of Street Lights
- Establishing Job and Work Controls
- Management of Central Municipal Garage
- Methods of Keeping City Employees Informed
- The Making of Administrative Decisions
- Procedure in Establishing the Merit System

Management Information Service is not an experiment. Its value has been tested and proved by 535 cities and towns, with populations from 1,000 to more than one-half million. (Complete list sent on request.) Here are a few typical cities, listed according to population:

Over 100,000—Cambridge, Mass.; Dayton, Ohio; Denver, Colo.; Kansas City, Mo.; San Francisco

50,000-100,000—Columbus, Ga.; Phoenix, Ariz.; Portland, Me.; Schenectady; Verdun, Quebec

25,000- 50,000—Clarksburg, W. Va.; Dubuque, Ia.; Jackson, Mich.; Manchester, Conn.; Raleigh, N. C.

10,000- 25,000—Bessemer, Ala.; Bismarck, N. Dak.; Gulfport, Miss.; Laramie, Wyo.; Sumter, S. C.

5,000- 10,000—Astoria, Ore.; Bozeman, Mont.; Fair Lawn, N. J.; Los Alamos, N. Mex.; Montpelier, Vt.

Under 5,000—Auburn, Calif.; Milford, N. H.; Quakertown, Pa.; Tooele City, Utah; Woodward, Okla.

What Does All This Cost?

You'll be surprised . . . for what would be a prohibitive cost if each city acted independently, actually is only a fraction of one cent of your tax dollar—because of the large number of subscribers. This Service is available to cities, counties, and towns on an annual subscription basis. The population of the city governs the cost of the Service and the number of copies of the Year Book and subscriptions to the monthly magazine you will receive. Do you want to know the cost of this Service to YOUR CITY? We will be glad to tell you the same day your inquiry is received.

Conducted by

The International City Managers' Association

1313 East 60th Street **Chicago 37, Illinois**

Municipal and Civic Publications

Local Government Careers in Britain

CAREERS IN LOCAL GOVERNMENT.—*By J. B. Swinden. The National Association of Local Government Officers, 1, York Gate, Regents Park, London, N. W. 1, England. 1949. 183 pp. 7s. 6d.*

This British publication could well be emulated by some enterprising organization in this country. The book has been published by NALGO to demonstrate that the public service offers many opportunities to able men and women; to open the eyes of ambitious juniors to opportunities they might otherwise miss; and to help parents, teachers, and all who may be called on to advise a boy or girl seeking, not fame or fortune, perhaps, but what is more important, a useful and satisfying career in the service of the community.

The book contains a chapter by a prominent psychologist on career choosing, and other sections on the outlook for women, types of officers, conditions of service, and an appendix listing examinations recognized for promotion purposes. Separate chapters describe the conditions, education requirements, etc., usually found in the typical various departments and offices of a local government.

Firing Boilers Properly

MANUAL OF INSTRUCTIONS ON PROPER FIRING METHODS IN THE INTEREST OF FUEL COMBUSTION AND CONSERVATION, AIR POLLUTION, SMOKE ELIMINATION.—*Official Publication of The Smoke Prevention Association of America, Inc., 139 North Clark St., Chicago 2, Ill. 1949. 79 pp. 50 cents.*

Persons interested in municipal smoke control problems will find this excellent manual of interest. It includes papers written by experts in various fields on "Teaching People to Burn Fuel Smokelessly and Economically," "The Ringlemann Chart," "Air Pollution Control as a Public Service," "Achievements in Smoke Prevention," etc. Sketches, firing charts, and other data cover various types of stokers adaptable for industrial and domestic plants, and for the home.

Community Vocational Guidance Service

OUT-OF-SCHOOL VOCATIONAL GUIDANCE. — *By Roswell Ward. Harper and Brothers, 49 E. 33rd St., New York 16, N. Y. 1949. 155 pp. $2.50.*

This book recognizes the widespread inadequacy of community services for fitting the right man to the right job, and presents a broad program for out-of-school vocational guidance fashioned both to assist the individual towards a full realization of his capacities and to serve the needs of the community as a whole.

The book discusses in detail the requirements of the vocational counselor in such a system, and offers a specific plan for organization and operation of the counseling office. As a pioneer study in this field, the book will be of unusual interest to students of vocational guidance, personnel and employment executives, and to all community service groups.

Kansas Government Course

KANSAS GOVERNMENT, A SHORT COURSE.—*By Albert B. Martin and L. W. Chesney. The League of Kansas Municipalities, 512 Capitol Federal Building, Topeka, Kansas. Third Edition, 1949. 136 pp. 50 cents.*

A textbook in booklet form used in schools and colleges of Kansas, and revised during each odd year following adjournment of the state legislature. The booklet is divided into four sections, covering the foundation and operations of Kansas government, and the organization of Kansas state and local government. Suggestions and exercises for students are suggested, and the appendix includes more detailed information about the Kansas government structure.

Municipal Bond Discussion

THE PUBLIC USE OF PRIVATE CAPITAL: A DISCUSSION OF PROBLEMS RELATED TO MUNICIPAL BOND FINANCING.—*By Maxine Virtue. Virginia Law Review, April, 1949 issue, pp. 285-315. $1.25 per single copy.*

One of the most penetrating and scholarly discussions of municipal bond financing problems yet published. The article declares that the worst single obstacle to effective planning and financing of municipal improvements is the discommunication between public officials, such as city planners, financial officers, and attorneys. The article also recommends that state governments play a larger role in terms of encouraging analysis of special debt, comparison of problems with neighboring municipalities to ascertain the identity of the optimum bonding community, and integration of debt with demand. "Stabilization and programming at issue, at state level," the author declares, "measurably correlates, stabilizes and simplifies the debt practices of all affected localities." Even for revenue bond issues municipalities cannot dodge their responsibilities to the bondholder, the article points out.

Taxation and Housing

TAXATION AS A MEANS TO MORE AND BETTER HOUSING—*By Harold S. Buttenheim. Paper delivered at Fifth Annual Conference, Henry George School of Social Science. Available without charge from the School at 50 E. 69th St., New York, N. Y. July 1949. Mimeo. 7 pp.*

The paper explores analytically the possibilities of site-value taxation as a means of providing local revenues. The problems posed in creating a model and adequate system of municipal taxation are discussed by means of using the case example of a theoretical new city, Homeville. Service charges, the importance of land use controls, the debt burdens created by war, and inequalities of the real estate tax basis of various cities are among the subjects which receive attention in the paper.

Accident Facts, 1949

ACCIDENT FACTS, 1949 EDITION—*Published by the National Safety Council, 20 North Wacker Drive, Chicago 6, Ill. 98 pp. 60 cents per copy. Discounts for quantities.*

This is probably the most complete compilation of accident facts and statistics available. Information is given on all types of accidents, industrial, community, home, school, transportation, fire, etc. The analyses of causes of accidents in various categories should prove especially useful to local safety groups. Special attention is devoted to motor vehicle accidents and traffic deaths on a city-by-city basis.

Canadian Government Finance

FINANCING CANADIAN GOVERNMENT — *By A. E. Buck. Public Administration Service, 1313 East 60th St., Chicago, Ill. 1949. 367 pp. $5.*

An informative study of the structure of Canada's system of government finance, showing its development and outlining its essential characteristics as compared with the American system of government finance. Major attention is focused on the Dominion government problems, although one chapter is devoted to Canadian municipal finance.

Real Estate Textbook

REAL ESTATE PRINCIPLES.—*By Henry E. Hoagland. McGraw-Hill Book Co., Inc., 330 W. 42nd St., New York 18, N. Y., 1949. Second Edition. 667 pp. $5.*

Revised edition of a textbook for college use which includes chapters on housing policy, rent control, and activities of government agencies in the real estate field.

Community Leadership

KENTUCKY ON THE MARCH.—*By Harry W. Schacter. Harper & Brothers, 44 E. 33rd St., New York 16, N. Y. 1949. 201 pp. $3.*

Those who have heard Mr. Schacter tell the dramatic story of the Committee for Kentucky will welcome this more detailed account of a unique and notably successful experiment in community organization.

And those to whom the tale is new—if they are concerned at all with the functioning of democracy at state or local levels—will find in *Kentucky on the March* a wealth of stimulating idealism and of helpful, practical ideas in community leadership and organization.

The author of this book—the president and general manager of the Kaufman Straus department store of Louisville, Ky.—has been for the last two decades a leading figure in the business and civic life of Kentucky. Organizer in 1944 of the Committee for Kentucky, and its president ever since, Mr. Schacter has a fascinating story to tell of the struggles and achievements of that organization—and he tells it in a lucid and impelling style.

The Committee for Kentucky has gone far in achieving the challenging objective set for it in 1944 by Mark F. Ethridge, publisher of the Louisville *Courier-Journal*, whose Foreword gives added distinction to a notable book: "If the Committee for Kentucky can develop the *moral climate* in which Kentucky can make progress, it will have made a real contribution to our times." What has happened since seems to have fully justified the Committee's recent change in slogan from "Wake Up, Kentucky" to "Kentucky on the March."

National Economic Growth Possibilities

CONTROLLING FACTORS IN ECONOMIC DEVELOPMENT—*By Harold G. Moulton. The Brookings Institution, Washington 6, D. C. 1949. 397 pp. $4.*

This book deals with the fundamentals underlying economic advancement. While offering a comprehensive analysis of the impeding and restricting factors, it gives equal attention to those of a dynamic nature which have progressively offset the limitations of nature and opened vast possibilities for future development.

Part I appraises the forces and factors which accounted for the economic progress of the nineteenth and early twentieth centuries, and also the sources of maladjustment which restrained the rate of advancement. Part II looks forward and indicates the economic potentialities of the century ahead and outlines the policies essential to their realization. Considerable attention is given to the problem of controlling depressions.

County Government in Connecticut

THE CONNECTICUT COUNTY—A DESCRIPTION OF ITS ORGANIZATION, FUNCTION AND RELATIONSHIP WITH OTHER GOVERNMENTAL UNITS—*By Henry J. Faeth. Institute of Public Service, University of Connecticut, Storrs, Conn. 1949. 48 pp. 35 cents.*

A history of Connecticut counties is followed by an analysis of present county administration, giving the functions and relative expenditures of various departments. There is also a brief section dealing with the county as a state judicial district.

The monograph points out that county government in Connecticut has very limited functions and performs some of these in a manner which has raised questions as to the effectiveness or propriety of county control. These questions center around the regular practice of filling positions on the basis of political patronage, the division of responsibility for jails between the sheriff and the county commissioners, inadequacy of jail facilities, poor methods of handling prisoners, and the retention by some of the counties of their homes for dependent and neglected children.

AUTOFLOW Traffic Signals

The AUTOFLOW is the last word in versatility. Built in streamlined sections, the signal can be made to serve any traffic combination. The AUTOFLOW was designed for ease of accessibility and a minimum of maintenance. No tools are required for inspections or service adjustments.

Precision spun Alzak aluminum reflectors, guaranteeing long life and efficiency, plus adjustable lamp focusing, assure a clear signal indication at 600 feet or more in bright sunlight. Lenses meet all Railway Signal coloring and Institute of Traffic Engineers requirements. The AUTOFLOW is adapted to any conventional method of mounting and finished in two coats of baked enamel, dark green or other colors when specified.

For complete specifications and prices, write, wire or phone.

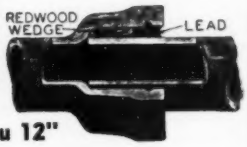
SOUTHERN SIGNALS, INC.

222 Beach Street • Box 1303 • Shreveport, Louisiana

LASTS CENTURIES... EASY TO LAY!

McWane PRECALKED joints are ready to use. Pure lead and redwood wedges are carefully put in the bells at the McWane Plant. No expensive equipment or skilled labor is necessary. Just a man with a hammer and a calking tool are all you need to lay McWane PRECALKED Pipe as fast as the trench is dug!

"Just Socket the Spigot and Calk!"



All Sizes . . . 2" thru 12"

Prompt Shipment on 4" and Larger Sizes

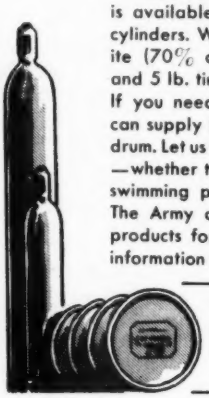
McWane PRECALKED Pipe

McWane Cast Iron Pipe Co. Birmingham, Ala.

CHLORINE

and Chlorine Products . . ARE OUR SPECIALTY

THREE GOVERNMENT STANDARD CHLORINE PRODUCTS FROM ONE SUPPLIER



—that's our boast. Our liquid Chlorine is available in 16, 105 and 150 lb. cylinders. We have Calcium Hypochlorite (70% available Chlorine) in 3¾, and 5 lb. tins—100 and 500 lb. drums. If you need Sodium Hypochlorite, we can supply it by the gallon, carboy or drum. Let us satisfy your Chlorine needs —whether they be for drinking water, swimming pool or waste purification. The Army and Navy have used our products for years. Write or wire for information and prices.

JOHN WILEY JONES CO.

CALEDONIA, N. Y.
INDIANAPOLIS, IND.
JACKSONVILLE, FLA.

Zoning Ordinance Guide

ZONING IN NEW YORK STATE, A GUIDE TO THE PREPARATION OF ZONING ORDINANCES.—*Bureau of Planning, Division of Economic Development, Department of Commerce,* 112 *State St., Albany* 7, *N. Y.* 1949. 145 *pp. Free.*

A revised version of the guide originally published in a preliminary edition in 1946. This is a practical handbook for local officials. It provides local zoning commissioners and municipal attorneys with sample zoning ordinances which have undergone practical tests and will aid communities in designing regulations fitting their individual requirements.

Sections are devoted to the basis of authority for zoning, the purpose of zoning, interrelationship of planning and zoning, etc. Illustrations help to make clear some of the definitions and ideas expressed. A booklet of this type should be made available for planning and zoning officials of every state.

New York's Housing Program

HOUSING, JANUARY 1946 TO JULY 1949.—*New York City Housing Authority. Available from Office of the Mayor, City Hall, New York* 7, *N. Y.*

A large lavish report, second of a series of reports on the activities of New York City departments and the status of municipal affairs. The report, which contains photos and other pertinent information about most of the projects which have been built in New York City since the war, covers public housing, quasi-public housing, F.H.A. housing, slum clearance, and tenant relocation. A section headed "The Future" lists for the first time the sites tentatively selected for new public housing projects to be built under the new Housing Act of 1949 and under an expanded state program. The report points out that in 42 months 42 public housing projects worth $540,000,000 have been started.

A Savings Banks Study

MUTUAL SAVINGS BANKS IN THE SAVINGS AND MORTGAGE MARKETS—*By John Lintner, Harvard Business School, Division of Research, Soldiers Field, Boston* 63, *Mass.* 559 *pp.* 1948. $6.50.

This is a definitive study of mutual savings banks—one of the most important groups of savings institutions in the country. It examines in detail their experience both as repositories for the public's savings and as institutions responsible for the productive investment of these funds.

The book contains an analysis of the bank's past investment services and policies, especially with respect to mortgage loans. Shifts in composition of assets and trends in income, expenses, and operating position are considered to provide the background for a detailed analysis of mortgage lending experience. Students of housing and city rebuilding problems may find the material on mortgage lending of interest, as a possible guide to what future policies will be in this field.

Norman, Okla., Takes Inventory

RESOURCES AND FACILITIES, NORMAN, OKLA.—*Published by Community Development Committee, Norman Chamber of Commerce.* 1949. 32 *pp.*

An attractive booklet, prepared from material furnished by the Institute of Community Development, University of Oklahoma, which inventories the major assets of the city and makes recommendations for its future development program.

Business and Government

BUSINESS AND GOVERNMENT—*By Rohlfing, Carter West, and Hervey. The Foundation Press, Inc. Brooklyn, N. Y. Fifth Edition.* 1949. 808 *pp.* $5.50.

A standard textbook on business and government which cuts across the conventional lines of demarcation in economics, finance, taxation, government, and allied social sciences. Chapters are included on public-utility regulation; highway, air, and water transport; state and local taxation; the cooperative movement, and many other aspects of the impact of governmental action on business.

Technical Aids for Local Officials

AIDS TO KENTUCKY GOVERNMENTS: A DIRECTORY, and AIDS TOWARD BETTER PUBLIC SERVICE.—*Two booklets by Vera Briscoe. Bureau of Business Research, University of Kentucky, Lexington, Ky.* 1949.

This directory, giving sources of information and assistance available to local public officials and other interested individuals, is similar to those published already in other southern states. The other report surveys how Kentucky officials have used various technical aids in their respective fields. It should assist toward a general understanding of the processes by which technical knowledge is translated into government services.

Basic Planning Surveys

BASIC SURVEYS FOR PLANNING.—*Edited for the Association for Planning and Regional Reconstruction by Jacqueline Tyrwhitt and W. L. Waide. Distributed by Iliffe and Sons, Ltd., Books Department, Dorset House, Stamford St., London, S.W. 1, England.* 1949. 44 *pp. Price* 5/-.

What are the basic surveys for planning? And what purposes do they serve? On what information should those surveys be based, and are any special skills required for their compilation? These are some of the questions which British specialists have attempted to answer, in terms of the requirements of the new British planning legislation. The approach of this booklet is derived from an actual survey of Kent County in Britain, though the work is presented in a form intended for universal application and covering the requirements of both urban and county planning.

Chicago Building History

HISTORY OF THE DEVELOPMENT OF BUILDING CONSTRUCTION IN CHICAGO.—*By Frank A. Randall. The University of Illinois Press, Urbana, Ill.* 1949. 388 *pp.* $5.

A detailed history of the structures, the foundation engineering and construction methods, and the planners and builders of the Loop section of Chicago. The growth and early development of Chicago is traced briefly. Biographies of the important builders and architects are included. Every major existing building is described in terms of its construction features. An abundance of photographs and sketches, and adequate indexing, add to the book's value.

American City Government Text

AMERICAN CITY GOVERNMENT—*By Ernest B. Schulz. Stackpole and Heck, Inc., Harrisburg, Pa.* 1949. 554 *pp.* $5.

A practical and scholarly text which places greatest emphasis on the problems of machinery and processes, rather than functions, involved in the government of American cities. Typical subjects of discussion are: the city as a municipal corporation, the relations between cities and states, forms of city government, popular participation in urban governmental processes, and the governmental organization of metropolitan areas.

The book makes it clear that an appreciation of the problems to be solved in devising adequate machinery and procedures requires knowledge and consideration of the city as a social phenomenon and familiarity with the functions of municipal authorities.

State Capitol Center Report

FLORIDA CAPITOL CENTER, A REPORT ON THE PROPOSED DEVELOPMENT.—*Prepared for the State of Florida by A. D. Taylor and Herbert L. Flint,* 7016 *Euclid Ave., Cleveland* 3, *Ohio.* 1947. 106 *pp.*

A short history of the development of Tallahassee as the State Capitol of Florida, including a description of the existing Capitol Center and problems involved in the proposed development. The handsomely illustrated book will be found of interest elsewhere because of its section discussing the Capitol Centers of the other 47 states. The section includes excellent diagrams showing the building layouts and arrangements of each of the 48 Capitol Centers.

Autobiography of a City Magistrate

OATH OF DEVOTION.—*By Julius Isaacs. P. E. Dutton & Company, Inc.,* 300 *Fourth Ave., New York* 10, *N. Y.* 1949. 337 *pp.* $4.50.

This book, which ought to have had more prompt mention in THE AMERICAN CITY, has been enthusiastically acclaimed by competent critics.

The *New York Herald Tribune said*:

"Judge Julius Isaacs, one of the able and incorruptible magistrates appointed by the late Mayor LaGuardia—an eminently conscientious student and servant of the public welfare. As the city's lawyer he was steadfast in preserving its rights and its money. As a magistrate he felt deeply for the people who found themselves day and night in the Magistrates' Courts in a variety of trouble. Judge Isaacs' book reveals him as a progressive penologist and sensitive human being, altogether devoid of judicial pomposity."

In the *Saturday Review of Literature* Morris L. Ernst wrote:

"Oath of Devotion is a book chockful of stories which, among literate people, will be found as touching and as exciting as the best of the movies . . . Only in the United States could this kind of a tale come into existence. Poor, immigrant, orthodox background; a cohesive family with pride and ambition sufficient to provide an education for the future judge. He tells an exciting and important story. I recommend it for those who are interested in the problems of crime, in the frailties of mankind, in some of the shortcomings of our civilization."

(See excerpts headed "The Judge's Job in a City Court," page 100 of this issue.)

British Country Town Plan

A FULL LIFE IN THE COUNTRY, THE SUDBURY AND DISTRICT SURVEY AND PLAN.—*By Keith Jeremiah. Published by B. T. Batsford, Ltd., New York Office,* 122 *E. 55th St., New York, N. Y.* 1949. 12-6 net.

This book describes a practical exercise in positive country planning; carried out in an area typical of many parts of rural England. The fundamental assumption of the author is the maintenance of a prosperous agriculture. The author was engaged by a voluntary organization to come and live in the small market town. After studying it in detail, together with that part of the surrounding countryside for which it is the business and cultural centre, he prepared a plan for what he found to be the "area of influence" of Sudbury, taking into consideration the desires of the local inhabitants.

Council-Manager Directory

RECENT COUNCIL-MANAGER DEVELOPMENTS AND DIRECTORY OF COUNCIL-MANAGER CITIES—*The International City Managers' Association,* 1313 *E. 60th St., Chicago* 37, *Ill. April* 1949. 24 *pp.* $1.

This little booklet contains information about council-manager developments in 1948, as well as some background material about the growth of the plan, cities that have abandoned it, and tables showing important trends with regard to the plan and the manager profession. The directory lists 877 cities and 15 counties which have the plan, and shows how long the plan has been in effect, the population of each city, the name of the manager and the year appointed, and whether the plan was adopted by ordinance or charter.

Municipal Labor Unions

LABOR UNIONS AND MUNICIPAL EMPLOYEE LAW—A SUPPLEMENTARY REPORT.—*By Charles S. Rhyne. National Institute of Municipal Law Officers,* 730 *Jackson Place, N.W., Washington,* 6, *D. C. Report No.* 129. 1949. 64 *pp.* $3.

Designed to bring up-to-date information published in the NIMLO Report No. 116, which has the same title, this report covers the many developments in the field of municipal labor relations since May 1946. Conclusions are drawn as to municipal powers and responsibilities in this field.

THE GREATEST NAME IN WOOLENS

... For over fifty years, American Woolen Co. has specialized in the manufacture of all types of woolen and worsted fabrics for Uniform purposes, including Military, Police and Fire Departments.

These standard qualities developed through years of experience and skill are recognized through their adoption and specification by leading uniformed groups throughout America as offering the basis for the soundest uniform policy not only with respect to wearing quality and appearance but also long range economy.

For the best, insist on American Woolen Co. fabrics.

Write us for samples or suggestions on fabrics most suitable for your requirements.

A Connecticut Regional Zoning Code

PROPOSED ZONING CODE FOR THE COMMUNITIES FORMING THE REGIONAL PLANNING AUTHORITY OF SOUTH CENTRAL CONNECTICUT—*Available from Zoning Committee Headquarters, 152 Temple St., New Haven, Conn. Nov.* 1948. *25 pp.*

This proposed zoning code was developed over a two-year period by a committee composed of representatives from each of 13 communities in South Central Connecticut. The committee was initiated by the New Haven Chamber of Commerce, and representatives were appointed by the respective heads of the municipal administrations involved.

The purpose of the committee was to obtain a workable, model zoning code, using uniform language and definitions, which could be used by all communities, in order to facilitate their growth and development. With this code as a guide, each community can prepare its own zoning map based upon its planning program and integrated with the zoning of its neighboring communities, particularly at the town lines. The staff of the New Haven City Plan Commission provided technical assistance and drafted the code's provisions in accordance with committee recommendations.

Individual House Planning

FAMILY HOUSING—*By Deane G. Carter and Keith H. Hinchclif, John Wiley & Sons, Inc., 440 Fourth Ave., New York 16, N. Y.* 1949. *265 pp.* $4.

Directed at the non-professional, this book is mainly a step-by-step analysis of individual home planning. As it seems mainly to be directed at farm families, there is little of interest to municipal officials as such.

Residential Land Distribution in Flint

THE RELATIONSHIP BETWEEN ACCESSIBILITY AND SOCIO-ECONOMIC STATUS OF RESIDENTIAL LANDS, FLINT, MICH.—*By John Kantner, Research Fellow, Social Science Research Project. Available from University of Michigan Press, Ann Arbor, Mich.* 1948. *Mimeo. 36 pp. 50 cents.*

This imposingly titled study is an examination of the distribution of residential lands relative to the central business district and four major industrial sites in Flint. The study shows an unusual and unexpected distribution of residential land uses in the Flint area which is attributed to Flint's very recent and rapid growth and to the fact that Flint grew to large size after the appearance of the automobile rather than before.

Planning and Housing Reports

CALIFORNIA—Report of the Senate Interim Committee on Community Redevelopment and Housing. Published by the Senate of the State of California, Sacramento 14. 38 pp.

COOK COUNTY, ILL.—Housing Market Analysis. West Section. Prepared by the Real Estate Research Corp., Chicago. Housing Authority of the County of Cook, 33 North La Salle St., Chicago. March 1, 1949. Ill. Graphs. Charts. Appendices.

DAYTON, OHIO—Annual Report 1948. City Plan Board, Dayton. June 1, 1949. Mimeo. Maps. Charts. 68 pp.

KANSAS CITY, MO.—Your Guide. City Plan Commission and Board of Zoning Adjustment. March 1949. Mimeo. Illus. Unpaged.

LOUISVILLE, KY.—40 Questions and Answers about Planning and Zoning. Louisville and Jefferson County Planning and Zoning Commission, Fiscal Court Building, Louisville 2. July 1949. Illus. 20 pp.

NEW ORLEANS, LA.—Guiding the Growth of New Orleans. City Planning and Zoning Commission of New Orleans, Howard Annex, 535 St. Charles St., New Orleans 12. Illus. Unpaged.

——Scope of the Master Plan, and Character of the City. The Master Plan of New Orleans. Prepared by Harland Bartholomew and Assoc., 317 North Eleventh St., Saint Louis 1. Maps. Charts.

NEW YORK—Local Planning and Zoning. A Manual of Powers and Procedures for Citizens and Governmental Officials. Department of Commerce, 112 State St., Albany 7, 1949. 84 pp.

PHOENIX, ARIZ.—Master Street Plan, Phoenix. Phoenix City Planning Commission. May 11, 1949. Maps. 17 pp.

SCHENECTADY, N. Y.—Comprehensive City Plan. Prepared for the City Planning Commission by Harland Bartholomew & Assoc., St. Louis, Mo. Sept. 1948. Maps. Tables. 144 pp.

TENNESSEE—The First Fifteen Years. A History of the Tennessee State Planning Commission. By Eleanor Keeble Guess. Publ. by the Division of University Extension for the Bureau of Public Administration, The University of Tennessee, Knoxville. June 1949. 102 pp.

TRENTON, N. J.—Scarcer than Hessians. Housing Authority of the City of Trenton, 875 New Willow St., Trenton 8. 1948. Illus. 28 pp.

UNITED STATES—Administrative Rules and Regulations For Military Housing Insurance under title 8 of the National Housing Act. Federal Housing Administration, Washington 25, D. C. Aug. 22, 1949. Mimeo. 22 pp.

——Discrimination in Housing. A Selected Bibliography. 1948. American Council on Race Relations, 4901 Ellis Ave., Chicago 15, Ill. Mimeo. 4 pp.

——Slum Clearance under the Housing Act of 1949. Housing and Home Finance Agency, Office of the Administrator, Washington 25, D. C. Aug. 1949. Mimeo. 12 pp.

WATERLOO, IOWA—The Comprehensive City Plan. Vols. 1 and 2. Waterloo City Plan Commission. 1947 and 1948. Tables. Maps.

Other Reports Received

ALLIANCE, NEBR.—Annual Report 1948. Illus. Tables. 36 pp.

AMES, IOWA.—This is Ames, a Portrait of your Local Government and Schools. League of Women Voters, 1219 Ninth St., Ames. 1948. 50 pp.

COLUMBUS, GA.—A Better Place in Which to Live. City Manager's Report 1948. Illus. Tables. 24 pp.

CRYSTAL FALLS, MICH.—Annual City Statement and Report on Audit. Year ended March 31, 1949. Tables. 30 pp.

DETROIT, MICH.—First Annual Report 1949. Detroit Metropolitan Aviation Authority. Mimeo. Unpaged.

ELMIRA, N. Y.—Annual Report 1948. Elmira Water Board. Illus. Tables. 32 pp.

GARY, IND.—Annual Report Sewage Treatment Works, 1948. Gary Sanitary District. Mimeo. Tables. 56 pp.

HARTFORD, CONN.—Annual Report. April 1948-April 1949. Illus. Charts. 40 pp.

HOUSTON, TEX.—Port Bulletin. International Edition. Sept. 1949. Official publication of the Houston Port and Traffic Bureau, 704 Cotton Exchange Building, Houston 2. Illus. 19 pp.

KANSAS CITY, KAN.—Annual Report 1948. Board of Public Utilities. Illus. Tables. 36 pp.

LOS ANGELES, CALIF.—Cooperative Administration of Property Taxes in Los Angeles County. Bureau of Governmental Research, University of California, Los Angeles. June 1949. Mimeo. 63 pp.

MONTREAL, CANADA.—Traffic Survey, City of Montreal. Analysis of the counts of four years: 1945, 1946, 1947, 1948. City Planning Department, City Hall.

NEW HAMPSHIRE—Directory of New Hampshire Municipal and County Officials, New Hampshire State Planning and Development Commission, Concord. 1949. 40 pp.

NEW ROCHELLE, N. Y.—Auditor's Annual Report 1948. Tables. 134 pp.

PHILADELPHIA, PA.—This Is Your Philadelphia. Report for 1948. Department of Public Works, City of Philadelphia. Illus. 72 pp.

——Program of Improvements to be Undertaken by the Department of Public Works. Feb. 10, 1949. Mimeo. Tables. 133 pp.

SOUTH DAKOTA—1949-1950 Official Directory of South Dakota Municipal Officials. South Dakota Municipal League, Vermillion. Mimeo. 26 pp. $3.50.

TEXAS—Salaries and Wages of Municipal Employees in Texas. By Terrell Blodgett. Bureau of Municipal Research, The University of Texas in cooperation with the League of Texas Municipalities, 2220 Guadaloupe St., Austin. Mimeo. Tables. 120 pp.

UNITED STATES—A Handbook of Information on Provisions of the Housing Act of 1949 and Operations under the various Programs. Housing and Home Finance Agency, Office of the Administrator, Washington 25, D. C. July 1949. 30 pp.

——The Passing Parade of Public Finance. Publ. by Municipal Finance Officers Assn. of the United States and Canada, 1313 East 60th St., Chicago 37. Aug. 1949. Special Bulletin 1949C. Mimeo. 8 pp.

——Suggested Standards for Homes for the Aged. Welfare Council of New York City, 44 East 23rd St., New York. 1948. Mimeo. 50 cents.

VIRGINIA—Salaries and Working Conditions of Firemen in Various Virginia Fire Departments. League of Virginia Municipalities, 902 Travelers Building, Richmond 19. Aug. 1949. Mimeo. 15 pp. 50 cents.

WASHINGTON—The Background of Constitutional Revision in the State of Washington. Bureau of Governmental Research and Services, University of Washington, Seattle. July 1949. Mimeo. 21 pp.

——Municipal Regulation of Taxicabs. Supplement to Report No. 95. Bureau of Governmental Research and Services, University of Washington, Seattle. August 1949. Mimeo. 11 pp.

Good Uniforms

(*Continued from page* 91)

like the policeman of 40 years ago. In many instances the same fabric is used, or is at least asked for. Nevertheless, changes do occur even in this conservative field.

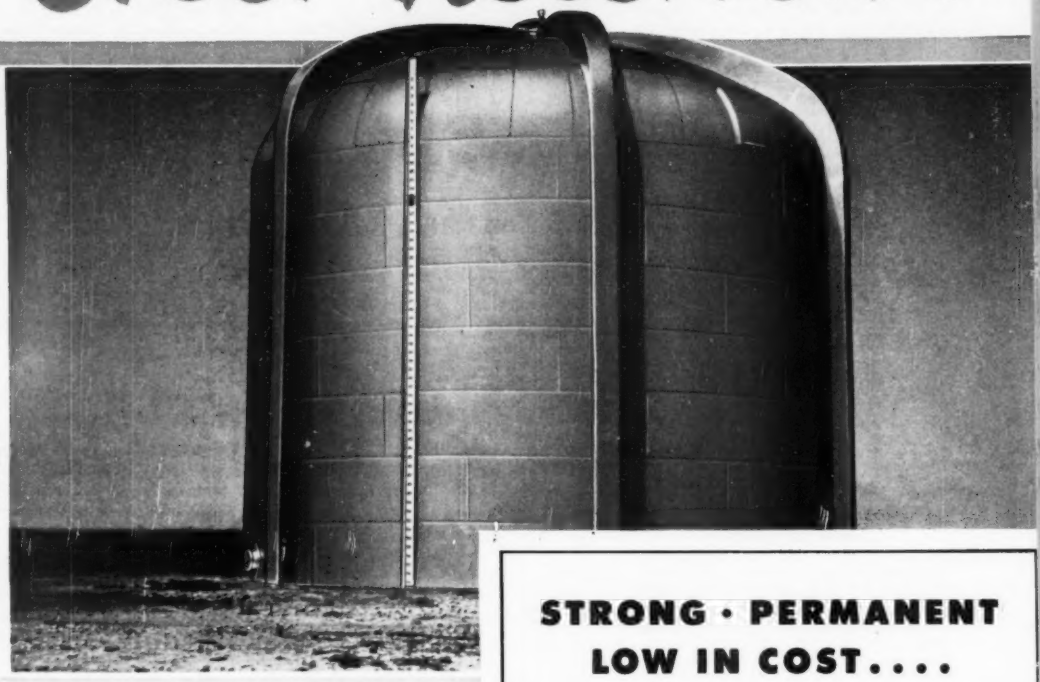
The August AMERICAN CITY illustrated a reefer overcoat in 20-22 ounce elastique, styled especially for police radio-car work. It is easy to manipulate, and where greater warmth is required a Sun-Bak lining (rayon face and woolen back) made by William Skinner and Sons, of New York, can be zipped in. Another innovation in lighter-weight overcoats uses 19-ounce indigo whipcord as an outer cloth with Jen-Cel-Lite lining, windproofed on both sides. Watching the offerings of progressive manufacturers will keep the police chief, the city purchasing agent, and the municipal official up to date on new fabrics and new methods in uniform-making to suit the special functions of the various groups of officers.

When Candles Lighted New York's Streets

"DURING this period (1696) a wave of enterprise swept over the little City. The next undertaking was the lighting of the streets. Except when the moon was good enough to shed her beams upon the town, New York was a city of darkness. Now, an order was issued providing that every seventh householder 'in the dark of the moon' hang a lantern containing a candle on a pole, the charge to be equally divided by the tenants of the seven houses."—*From* A Landmark History of New York, *by Albert Ullman, D. Appleton & Co.*, 1901.

PITTSBURGH • DES MOINES

Steel Reservoirs

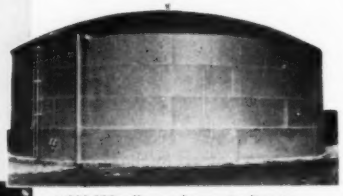


2,200,000-gallon steel reservoir, with ellipsoidal roof and ornamental pilasters. Diameter 80', height to roof 51'. Midland, Tex.

STRONG • PERMANENT
LOW IN COST....
for economical water storage!

Two 3,000,000-gallon steel reservoirs, diameter 144', height 25'. Berryville, Va.

1,500,000-gallon steel reservoir, with ornamental cornice. Capitol Heights, Md.



1,000,000-gallon steel reservoir, diameter 84'3", height 24'10". Bottineau, N.D.

Steel—with its strength, permanence and low maintenance—offers the best service and greatest overall economy in water reservoir construction.

Steel Reservoirs by Pittsburgh-Des Moines provide these advantages fully—plus the design engineering experience, modern fabrication, expert erection and guaranteed satisfaction typical of this responsible organization. *Write for a quotation on your projected reservoir requirements, of any type or size!*

400,000-gallon steel reservoir, ellipsoidal roof; diameter 48', height 25'. Fort Benton, Mont.

Two 100,000-gallon steel reservoirs, cone roof; diameter 30', height 21'. Atlantic, Iowa

PITTSBURGH•DES MOINES STEEL CO.

Plants at PITTSBURGH, DES MOINES and SANTA CLARA

Sales Offices at:

PITTSBURGH.....3412 Neville Island
NEW YORK....Room 915, 270 Broadway
CHICAGO, 1216 First National Bank Bldg.
DES MOINES..913 Tuttle Street
DALLAS..1217 Praetorian Bldg.
SEATTLE.....920 Lane Street
SANTA CLARA, CAL.....619 Alviso Road

News and Illustrations

Items of interest to city, town and county officials and others concerned with the economical construction and efficient operation of public improvement undertakings

G-E Develops New Mobile Radio Equipment

Paul L. Chamberlain, right, manager of sales for the Transmitter Division, and C. M. Heiden, section engineer of Radio Communication, inspect the new mobile combination.

The General Electric Co., Syracuse, N. Y., has developed 25-50-mc mobile radio communication equipment which meets or exceeds all new FCC regulations. The equipment is designed for use by public utilities, and law-enforcement and emergency departments.

Available for 20 kc or 40 kc channel widths, the narrow-band units make 40 kc adjacent channel operation a practical possibility in the same service area. Actual tests of the new 20 kc equipment in South America show that skip interference from U. S. stations on frequencies only 20 kc removed was entirely eliminated without loss of ground wave communication range.

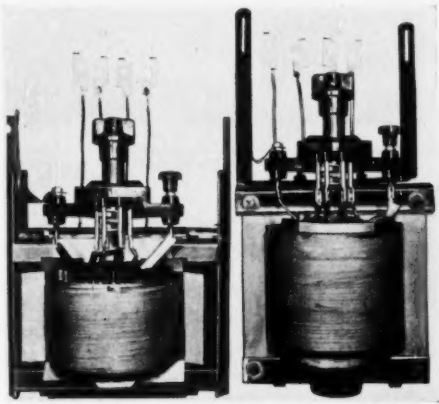
Fleet District Manager For American Well Works

Gerald A. Fleet has been appointed district manager for The American Well Works, Aurora, Ill., covering metropolitan and southeastern New York, and northern New Jersey. His headquarters will be at the company's New York City offices at 475 Fifth Ave.

G. A. Fleet

American Well Works manufactures pumps, water conditioning, sewage and industrial waste treatment equipment.

Transformers—Small and Light—With High Efficiency



The new and the old 3 Kva core and coil.

The distribution transformer coasted until the steel industry came up with oriented silicon steel. Almost every manufacturer of distribution transformers has found it necessary to develop an entirely new type of core construction in order to use the new material properly, and to pass along its benefits to the ultimate user. The new transformer is smaller and much lighter. On the pole it outperforms its predecessors in every department.

Since the material is magnetized parallel to the grain, throughout, full advantage is taken of the magnetic characteristics. For the same core loss and exciting current, the new core can be operated at higher flux densities than the old, requiring fewer coil turns, or reduced core cross-section, or both. Actually HiperCore distribution transformer cores will operate at about 30% higher flux density than the old type. Both core and coil are reduced in size; and therefore, the frames, tank, and oil are all reduced 15 to 30%.

Construction and technical features of the transformers are described in two folders which may be obtained from Moloney Electric Co., St. Louis 20, Mo. Titles are *HiperCore Distribution Transformers* and *The New Moloney HiperCore Distribution Transformers.*

Autocar Submits Low Bid For New York City Trucks

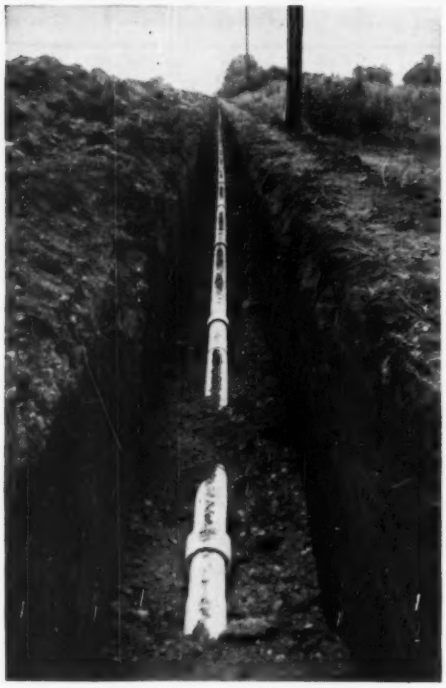
The Autocar Co., Ardmore, Pa., has been named low bidder on 200 heavy-duty trucks for New York City's Department of Sanitation. The order resulting from this low bid will amount to about $750,000.

All of one model, the style selected by the city is the C-50: 182-inch wheelbase, 119-hp engine. They will be fitted with Load Packer bodies by Gar Wood Industries, Inc., Wayne, Mich.

Builders-Providence, Omega Machine Move

Builders-Providence and Omega Machine Co. have moved from their Chicago office at 1852 Peoples Gas Bldg., to 1141-43 Greenleaf Ave., Wilmette, Ill. The main offices remain at 18 Codding St., Providence 1, R. I.

K&M "Century" ASBESTOS-CEMENT PIPE



No corrosion

No tuberculation

No electrolysis

No flow reduction

The "infections" that deteriorate the strength and capacity of water mains are just simply ruled out by the basic composition of K&M "Century" Asbestos-Cement Pipe. The limits of durability are extended indefinitely, yet this pipe is relatively light in weight.

Cost shrinkage begins with low shipping weight. Laying is done with low-cost equipment. Labor cost falls because this pipe is so easily placed, with any needed cutting and tapping done at the site. Time cost per joint is low and results are safeguarded by "Century" flexible couplings, with their ample latitude for radius and gradient.

Here are joints and pipe that make a line highly resistant to traffic vibration, earth settlement, and Time. Age merely strengthens K&M "Century" Pipe. Flow area and the friction factor don't change. Therefore continued pumping economy in the line is as certain as the economy of the whole K&M pipe installation. That is why men who bring this pipe to a community can take pride in their recommendation. For full information, write us.

Nature made Asbestos...
Keasbey & Mattison has made it serve mankind since 1873.

K&M best in asbestos ®

KEASBEY & MATTISON
COMPANY • AMBLER • PENNSYLVANIA

Parking Meter Advertising In California

The first parking-meter advertising installation in California took place at Redondo Beach on July 8, 1949.

Councilman William Czuleger (left) sponsored the parking-meter-advertising resolution which passed unanimously. The others are Mayor Charles Wortham (center), and City Manager Evan Emery Peterson (right), appointed July 1, 1949. The three are participating in the ceremonial cutting of the tape at the new installation of signs. The one shown is a reproduction of the new safety emblem adopted from 93 entries in a contest. The design was executed by Harry Peterson, student and son of ex-Chief of Police Peterson of Redondo Beach. Business information on this type of parking-meter advertising may be secured from C. W. Smick, 1806 Benedict Canyon Drive, Beverly Hills, Calif., or from the Parking Meter Advertising Co., 1143 West 6th St., Austin, Texas.

Goddard Named Manager

C. H. Goddard

Charles H. Goddard has been appointed manager of utility sales by the Sylvania Electric Products Inc., Salem, Mass., to take charge of sales of all lighting equipment to municipalities.

Mr. Goddard joined Sylvania Electric in 1944 as merchandise manager of the fluorescent fixture division. Before that he was vice-president of the Pittsburgh Reflector Co.

New Incinerators Use Improved Charging Gates

Over 17 important incinerator installations built this year use Beaumont Birch charging gates or ash gates. Several use both, according to W. G. Davenport, vice-president of the Beaumont Birch Co., 1505 Race St., Philadelphia, Pa.

Beaumont Birch ash gates are distinctive for their refractory lining on the top—heavy enough to hold the intense heat of the modern incinerator. They also are constructed with a water seal and a convenient water overflow gutter that carries away excess water used in ash quenching. The gate is operated by air, water or oil cylinders, or by hand wheel and chain with a rack and pinion that allows it to open easily at any desired position. The gate opening is large enough to insure passage of the incinerator residue without trouble.

The charging gates, also lined with refractory brick, carry a separate load-bearing plate that separates the refuse from the gate itself and gives added insurance that the refuse will not ignite by heat transference through the gate itself. Both the gate and the load-bearing plate work on rollers that make operations sure and easy

BREAK AND CUT COSTS THE EASY WAY

BREAK WITH POWER, SPEED, ECONOMY

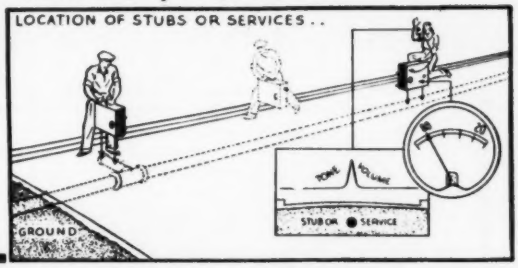
The MIGHTY MIDGET reduces the cost of breaking asphalt and concrete to a minimum cost that is unequalled by other methods. Tamps backfill at an unbelievable pace; gives high density. All controls within operator's reach. Operates on 105 C.F.M. compressors.

Write for information to Department "D"

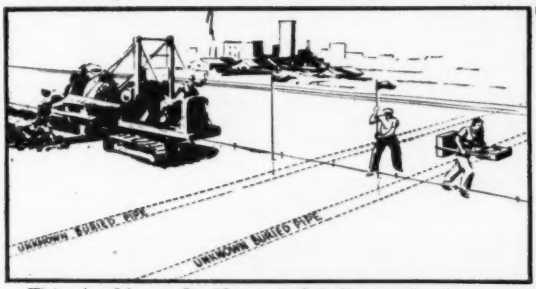
R.P.B. CORPORATION
2751 EAST 11TH STREET • LOS ANGELES, CALIFORNIA

M SCOPE Pipe & Cable Finder

—makes it easy to locate a stub:



—and easy to locate a hidden pipe and to trace its course:



—saves time, mess, money, man-hours and bother

Another "ACE" that saves SPADE WORK!

Write for 16-page Booklet on leak indicators, box locators and pipe and cable finders

FISHER•RESEARCH LABORATORY, INC., Palo Alto, California

Every American KITCHENS Garbage Disposer Installed Saves Your City Money!

Civic Authorities Everywhere Agree—Disposers Help Reduce Both Garbage Collection and Health Department Costs!

■ Yes, each disposer installation made in your city means an actual dollars-and-cents savings. Small now, perhaps—but when the time comes that a majority of homes have disposers, your savings will be appreciable.

That's why far-sighted municipal authorities in many cities are *urging* architects and builders to include garbage disposal units in the new houses they build. They recognize that disposers benefit the municipality as well as the homeowner—because they help check spread of disease in addition to reducing collection costs.

Sooner or later *every* family will dispose of its food wastes this more sanitary way. We, of course, hope that you find yourself free to recommend our American Kitchens Disposers. But even if you recommend another brand, we say "go to it". Because the sooner disposers are in universal use, the more healthful we all should be!

The new American Kitchens Disposer. As was cited in *The American City's* study, "Ground Garbage", (Feb., 1948 issue) universal use of such disposers (1) should not overload a sewer system, (2) nor cause trouble of any kind in any well-designed sewer, (3) will effect material savings in the cost of handling garbage.

WHY ENGINEERS SAY THE NEW AMERICAN KITCHENS DISPOSER IS SUPERIOR TO ALL OTHER TYPES

While *all* nationally-advertised disposers have been proved satisfactory, engineers consider the new American Kitchens Disposer the most advanced. For several reasons: the American Kitchens Disposer provides a patented "knee-action" hinge in the center of each pulverizer arm (see diagram) so that disposer absolutely can not jam—even on contact with metal! Also, engineers approve its additional *vertical* shredders, saw-tooth hammers, easier servicing.

American KITCHENS DISPOSER

PRESENTED BY THE MAKERS OF FAMOUS AMERICAN KITCHENS

AMERICAN CENTRAL DIVISION AVCO CONNERSVILLE, INDIANA

New Pumper Design From Ward LaFrance

The Ward LaFrance Truck Corp., Elmira, N. Y., is introducing to civilian users a specially designed fire pumper

that was developed for use by the armed forces during World War II. With the Ford "bonus built" trucks, Ward LaFrance is using pumps with 200- to 500-gpm capacity at pressures from 120 to 700 pounds. Four standard booster tanks of 300 and 500 gallons are available for Ford's short wheelbase chassis and 700 to 1,000 gallons for the longer wheelbase.

The pumper has a pump control station with full ground operations controls. In addition, an interlocking shift from cab to ground control makes the chassis drive engagement from the control station impossible — an important safety feature.

Proper cooling of the engine while pumping is obtained by circulating a regulated amount of cool water from the fire pump through heat exchangers installed in the hot-water lines from the engine to the radiator. The water then passes back to the pump. The radiator and engine fan is also cooling and there is an emergency system by which cool water from the fire pump can be injected directly into the engine cooling system.

Hose reels hold 300 feet of ¾-inch hose or 200 feet of 1-inch hose.

Diesel Engine Mfrs. Assn. Engages Robert S. Ogg

Robert S. Ogg has been appointed education director of the Diesel Engine Mfrs. Assn., 1 N. LaSalle St., Chicago 2, Ill., replacing Ervin L. Dahlund who resigned to become the chief engineer of the diesel engine division of Fairbanks, Morse, & Co.

R. S. Ogg

Coming from the Lima - Hamilton Corp., Hamilton, Ohio, Mr. Ogg has a solid background of engineering knowledge, and a large part of his present position will entail cooperation with the accredited mechanical engineering schools of the country and with the engineering departments of the diesel engine builders and manufacturers of diesel parts, accessories, and oils.

HERE IS POSITIVE PROTECTION AGAINST BACK WATER, SEWER GAS, AND VERMIN IN WASTE PIPES . . .

THE KENNEDY-PENNIE
BACK WATER AND SEWER GAS VALVE

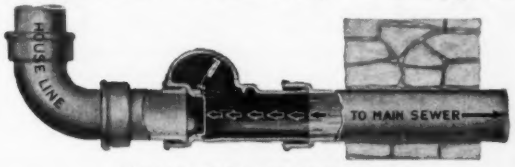
FIG. 55, Bell and spigot ends. Available in 2" thru 12" sizes.

KENNEDY-PENNIE Valves permit full, unobstructed flow of sewage in the open position with no possibility of clogging or stopping up. When outflow ceases, the disc closes tightly, maintaining a tight seal against water or gas, preventing the passage of vermin or germs.

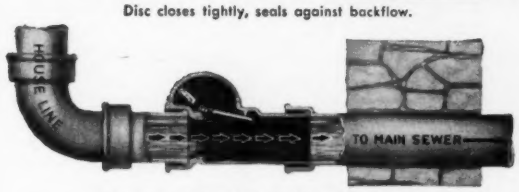
Valve body and cover are KENNEDY Higher-Strength Cast Iron, with a thick asphaltum coating to prevent rust or corrosion. Bolts are rustproofed steel with bronze nuts. Disc and body seat ring are durable bronze.

Each valve is inspected and "smoke-tested" and is properly counterbalanced at the factory for horizontal installation. For vertical or inclined installation, additional counterbalancing is readily done without removing disc from valve or valve from line.

Once installed, the KENNEDY-PENNIE Valve requires no maintenance or attention . . . and lasts as long as the drain pipe itself!



Disc closes tightly, seals against backflow.



Disc opens fully, without restriction for outflow.

Write for Circular 43 • Buy from Your Local Distributor

THE KENNEDY VALVE MFG. CO.
1030 EAST WATER ST.
ELMIRA, NEW YORK
VALVES • PIPE FITTINGS • FIRE HYDRANTS

OFFICE-WAREHOUSES IN NEW YORK, CHICAGO, SAN FRANCISCO • SALES REPRESENTATIVES IN PRINCIPAL CITIES

NEW REVENUE

For Redondo Beach, California

(One of Many Cities Installing Parking Meter Advertising Co. Signs)

From Colorful National Advertising

★★ FIRST COMPANY TO INSTALL AND OPERATE PARKING METER ADVERTISING ★★

★ HOME OWNED: Local businessmen own and operate Parking Meter Adv. in your city.

★ THREE SIGNS PER POST: Means more revenue to your city without taxation.

★ ATTACHED TO METER POSTS: Does not interfere with meter operation.

★ NATION-WIDE COVERAGE: From Washington to Florida our licensees are securing city contracts and installing signs.

★ CHARLES BRAZIL—City Manager of Taylor, Texas—says "We have had no objections to the signs from any source, in fact, I think they add to the attractiveness of the meters."

Write for address of our representative in your state.

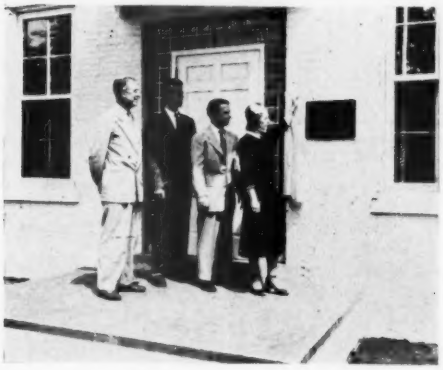
PARKING METER ADVERTISING COMPANY

REG. U.S. PAT. OFF.

1143 WEST 6th STREET, AUSTIN, TEXAS

PATENT PENDING

Atlas Research Dedicates New Research Laboratories



At the unveiling of the plaque in memory of the founder, Maximillian F. Wirtz, are, left to right, George L. Wirtz, Sr., son of the founder; Arthur F. Wirtz, Jr., and George L. Wirtz, Jr., grandsons of the founder; Mrs. Bernardine Wirtz Dorr, widow of the founder.

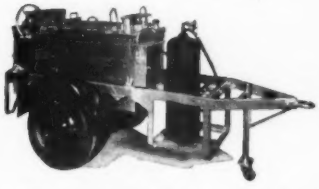
The Atlas Mineral Products Co. of Pennsylvania recently dedicated its new research laboratories constructed at the company's headquarters in Mertztown, Pa. The laboratory is staffed by twelve chemists and technicians under the direction of Dr. Raymond B. Seymour, technical director, and Joseph Dahle, research director. There is over 5,000 square feet of floor space.

Atlas operates in the field of protective coatings, linings, cements, and pipe jointing materials.

Diamond Alkali Promotions

Fred W. Fraley, vice-president in charge of sales of the Diamond Alkali Co., 300 Union Commerce Bldg., Cleveland 14, Ohio, has announced the advancement of two key sales executives. Earl J. Mills has been promoted to the position of manager of the company's Southwest sales district covering Texas, Oklahoma, and Kansas, with headquarters at Houston, Texas. Charles W. Klaus has been appointed to take charge of sales activities in Illinois, Indiana, Iowa, Michigan, Minnesota, Wisconsin, and Nebraska. He will operate from the company's Chicago office.

Small Heating Kettle



The Aeroil Products Co., Inc., Wesley St., South Hackensack, N. J., has put on the market a new 50-gallon kettle for heating and melting rubberized asphalt and other joint sealing compounds.

The No. 50 DVP is constructed on a double-boiler system with a multiple oil-bearing tube arrangement running through the melting compartment to provide uniform heating and speed in melting. About 40 gallons of heat bath oil are required for both outer vat and tube system.

Fired by a single burner with an average consumption of 21 cubic feet per hour, the kettle has accurate thermostatic controls that include a shockproof, two-pole thermostat of the rigid, contact type equipped with dial knob calibrated from 100° to 550°.

The unit is available either on a pneumatic-tired trailer or on skids for mounting on a light truck.

BRAXMAR BADGES

Standard Badges Since 1879

Write for circular illustrating badges for Police, Fire and other City, County and State Officials

John O. Veit, Pres.

C. G. Braxmar Co., Inc.

216 E. 45th St., New York 17, N. Y.

FOR BARE • DRY • SAFE WINTERTIME PAVEMENTS

Use clear chemicals applied with a THRIFTY "Scotchman." Clear salt—through a stainless steel "Scotchman"—is spread seven times faster, and 50% cheaper than sand or cinders. The "Scotchman's" thin, wide "bird-shot" salt pattern prevents anchor-ice; insures fast, clean plowing without excessive brine to cause damage.

You should see this amazing spreader which saves hundreds of users up to $4.25 every mile treated.

COMPLETE CONTROL: *direction, width, and rate of spread.*

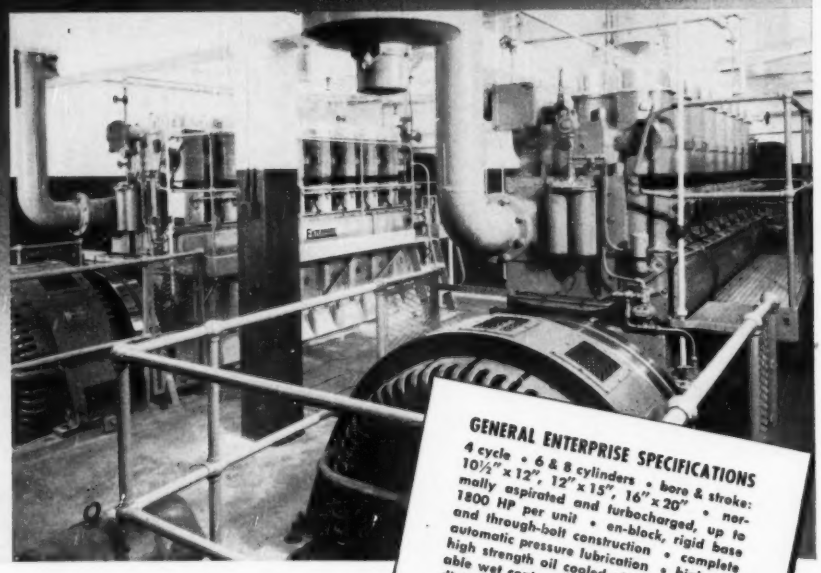
WEATHER-PROOFED ENGINE • ELECTRIC STARTER

BAGGED or BULK SALT • USE on ANY TRUCK or PICKUP

Literature? Demonstration?

TARRANT MFG. CO. EAST AVE., SARATOGA SPRINGS, N. Y.

Diesel Power that Measures Up



GENERAL ENTERPRISE SPECIFICATIONS

4 cycle • 6 & 8 cylinders • bore & stroke: 10½" x 12", 12" x 15", 16" x 20" • normally aspirated and turbocharged, up to 1800 HP per unit • en-block, rigid base and through-bolt construction • complete automatic pressure lubrication • high-test, high strength oil cooled pistons • removable wet contact type cylinder liners • individual injection pumps • "Zero-lash" valve adjusters. Optional equipment for all special requirements.

-to your most exacting requirements

One thing you want in a Diesel engine is security against power failure. An unscheduled stoppage in your power source can spell a lot of trouble. It can cost you plenty for time out from doing its job—whether the application is in power plants, oil fields, pipe lines, dredges, industrial power or irrigation.

Yes, these and other power applications demand that Diesel engines measure up to specific high-performance requirements. Enterprise Diesels, conservatively rated for highest service in *any* job, put a stop to power failure worries. Continuous engineering advancement, backed by years of Diesel building experience, has always kept Enterprise Diesels a step ahead in new developments designed to provide *you* with the most modern, efficient power.

For dependable performance, look to Enterprise . . .

Choice of the Power Experts

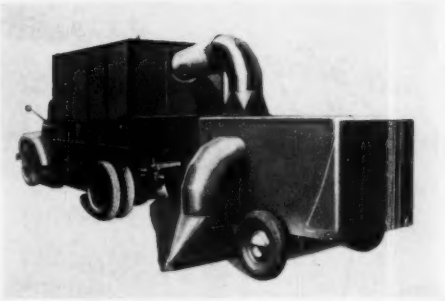
WRITE TODAY!

New Bulletin No. 203 describes and illustrates the complete line of Enterprise Stationary Diesels and Generator Sets.

ENTERPRISE Diesels

ENTERPRISE ENGINE & FOUNDRY CO.
18TH & FLORIDA STS., SAN FRANCISCO 10, CALIF. OFFICES IN PRINCIPAL CITIES

New Housing On Vacuum Leaf Loader



Similar to an oversized vacuum cleaner, the American Vacuum Leaf Loader sucks up wet or dry leaves from the street.

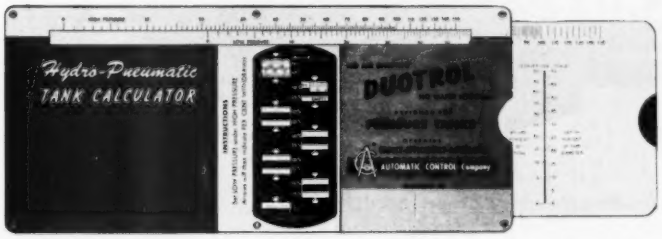
A gasoline engine drives a large blower through V-belts. The engine and blower assembly are mounted on a portable two-wheeled trailer which can be quickly connected or dismounted from a truck. Piping from the suction side of the blower is connected to a wide nozzle that is positioned a few inches above the street level. The discharge side of the blower is connected to a large metal duct which is led to the collecting truck. A light steel framework, covered with wire screening or expanded metal is adjusted to the truck body to retain the leaves in the truck and to increase the truck's carrying capacity. These screened enclosures can be provided for any type of open truck body.

A special ten-inch-diameter flexible hose with handle is available for attachment to the suction side of the blower for picking up leaves from remote spots ordinarily inaccessible to the standard suction nozzle.

During an average day, the machine will cover from four to six miles.

The machine may be used for several other purposes: blowing sand from sand-blasting operations on steel bridges; ventilating sewers; blowing salt and cinders on roads and runways. The American Vacuum Leaf Loader, manufactured by the Leaf Loader Div. of the American Structural Steel & Tank Co., 21050 W. Eight Mile Rd., Detroit 19, Mich., also picks up tin cans up to one-gallon size, and glass bottles.

Hydro-Pneumatic Tank Calculator Eliminates Rule-of-Thumb



Fast, accurate determination of the best high-water level in pressure tanks under all operating conditions is now possible with the new Autocon Hydro-Pneumatic Tank Calculator devised by the Automatic Control Co., 1005 University Ave., St. Paul 4, Minn.

Based on Boyles Law, the Calculator instantly tells the best air-water ratio, the most efficient pressure differential, the exact amount withdrawn on any pressure drop, and the resultant reserve or residual.

Information such as this can save power and reduce maintenance costs by anticipating the pump operations per hour at any demand rate.

The Calculator sells for $1.00.

Snell Receives Award

Dr. Foster D. Snell, chemical consultant with offices at 29 W. 15th St., New York City, was given the gold medal of the Society of Chemical Industry at its meeting in Manchester, England. This is the second time in its 53-year history that the medal has been awarded to an American.

Dr. Snell's special field of personal interest is in surface active phenomena —soaps, detergents, wetting agents.

Concrete River Weight For Under-Water Pipe

The Universal Concrete Pipe Co., 297 S. High St., Columbus 15, Ohio, has perfected a concrete river weight that does an efficient job of weighing down under-water pipe.

The new weights, of rounded construction, permit the pipe to roll or twist while being laid. The weights are in two sections bolted together after encircling the pipe.

3 way dependability

1. **IN CASE OF FIRE**—dependable, smooth operation . . . clear, large waterways . . . insure plenty of water. Hydrants open fast and easily *with* the pressure . . . and close without water hammer.
2. **IN CASE OF ACCIDENT**—stem held in place below main valve means no water loss due to a bent stem. One man can easily remove all operating mechanism for inspection or repairs.
3. **IN CASE OF LOW TEMPERATURES**—Eddy's positive drip action automatically drains hydrant barrel of all water when hydrant is closed . . . safeguards hydrant against freeze-ups.

EDDY
VALVE COMPANY
WATERFORD NEW YORK
A subsidiary of James B. Clow & Sons

Accurate receipting... complete protection for both taxpayer and municipality!

BURROUGHS RECEIPTING AND VALIDATING MACHINE

also available without cash drawer

The Burroughs Receipting and Validating Machine is designed to receipt bills and other documents for taxes, fines, fees, etc., and to account for all payments so that the taxpayer, the cashier and the municipality are all completely protected.

Repeat receipting is mechanically enforced. Thus, the taxpayer's bill with the payment receipted on it is an exact duplicate of the record retained by the municipality. This additional record is made by depressing a single key.

The machine marks the bill "paid" and identifies it with a transaction number, date, amount and cashier's symbol.

As a by-product of the bill receipting, the information is recorded on a locked-in audit tape. This serves as a daily cash report, since amounts are automatically added to provide a total of the day's receipts.

BURROUGHS ADDING MACHINE COMPANY, DETROIT 32, MICHIGAN

Protects the Municipality

Enforces correct accounting for payments on same day received.

Protects the Cashier

Identifying symbol limits his responsibility to transactions handled.

Protects the Taxpayer

Assures him full credit for amount paid.

WHEREVER THERE'S BUSINESS THERE'S **Burroughs**

Sidewalks Shined By New Service

Special chemical cleaning detergent.

The scrubbing brush in action.

See the difference in the sidewalks.

With clean store interiors, clean windows and clean streets there remains only the need for clean sidewalks to achieve a spotless "shoppers' town." August 2 saw the inauguration in New York City of a new service designed to keep sidewalks clean at so much per lineal foot. The first customer was the Fifth Avenue house of Bergdorf Goodman who spends over $1,000 a year to keep clean the sidewalks in front of the swank store.

Sidewalk Sanitation Service, 516 Fifth Ave., New York 18, has contracted to do this chore for $700 a year. The work covers snow removal as well as the removal of chewing gum and dirt. The principal tool is a Guttersnipe pick-up street sweeper with certain important modifications which, at night, rolls up onto the sidewalk of the customer, and starts cleaning first at the building line. The hand job of 2½ hours is performed in 30 minutes. The service is on the basis of 7 days a week, always on call.

Louis Schwartz, president of S.S.S., is presently concerned with building and satisfying customers on Fifth and adjacent Avenues. He is conscious, however, that sidewalk cleaning is a universal urban need wherever business district pride is found. Merchant associations in other cities have asked him to come and tell his story.

Means, McNulty Appointed

The Protective Coatings Div., Pittsburgh Coke & Chemical Co., has opened a new office at 711 Thompson Bldg., Tulsa, Okla., and managing it is Frank E. McNulty, former manager of the Tulsa office of the Koppers Company.

Benjamin H. Means has been appointed service manager of protective coatings for the U. S.

ROADMASTER
Street Sweeper
WIRE

High Scleroscope Rating
Uniform temper.

Specially processed for high fatigue — against breakage. Long wearing. Conveniently cut and delivered in 100 and 200 lb. boxes. Prompt shipment from stock of all standard sizes.

This gutter broom wire will prove an economy in your service.

"MORE MILES PER BRUSH"

JOHNSON
Steel & Wire Co., Inc.
Worcester 1, Massachusetts
New York Akron Chicago Detroit
Los Angeles Toronto

Goldak
MODEL 87
FEATHERWEIGHT
ALL-PURPOSE
PIPE LOCATOR
For Municipalities

- Shows *EXACT* location of buried pipes, mains, services, gates, tees, ells, stubs, etc.
- New electronic circuit provides strong positive location signal.
- Uses readily available standard miniature radio tubes and flashlight batteries.
- Compact in design, ruggedly built for lifetime use.
- Operating simplicity. A one-man instrument.
- Featherweight - only 11 lbs. complete.
- Guaranteed superior performance - resulting from 15 years of electronic research and construction of locating instruments.

Saves Your City Time and Money

Write today for Bulletin and Name of Nearest Distributor

Goldak Outsells - Because it Excels
THE GOLDAK COMPANY
1544 West Glenoaks Blvd., Glendale 1 California

Reduce ELECTION *Costs*

with

AUTOMATIC VOTING MACHINES

- CONSOLIDATE PRECINCTS
- USE FEWER ELECTION OFFICIALS
- REDUCE PRINTING COSTS
- ELIMINATE EXPENSIVE RECOUNTS

LET US MAKE A SURVEY OF THE SAVINGS POSSIBLE IN YOUR COMMUNITY. THIS SURVEY WILL BE MADE WITHOUT COST OR OBLIGATION TO YOU.

Write—

Automatic Voting Machine Corporation

JAMESTOWN, NEW YORK

— *Since 1898* —

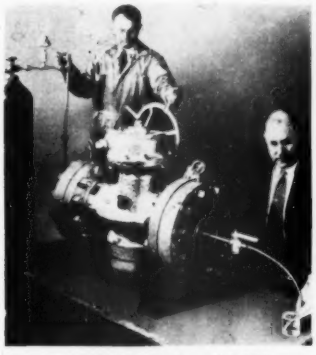
RCA's New Mobile Radio For Large-Area Coverage

The Fleetfone, a highly-selective, two-way mobile communication system for operation from 30 to 50 megacycles, has been put on the market by the Radio Corp. of America, RCA Victor Div., Camden, N. J., and is designed for use by police, fire, public utilities, and transportation departments.

Completely contained in a single metal-shielded unit, the Fleetfone discriminates against interference from adjacent or alternate channels. A newly developed circuit for automatic modulation control locks the voice input level at a constant amplitude so that whether the operator shouts or speaks softly, the dispatcher at the receiving end hears the message at a steady level.

The new equipment has provision for either single- or two-frequency operation. Where two-frequency operation is used, a switch on the control unit permits instant change of the mobile transmitter frequency so the vehicle can communicate with either the control station or other mobile units.

New Plug Valve Lubricant



It is estimated that about 10,000 man-hours were spent in the laboratory in the experimental work.

The Nordstrom Valve Div., Rockwell Mfg. Co., 400 N. Lexington Ave., Pittsburgh 8, Pa., has introduced a compressible valve lubricant that the manufacturer claims reduces the frequency of lubrication from 1/10th to 1/100th of that previously required.

The lubricant, Hypermatic, having been compressed, has stored within itself sufficient energy to automatically renew the lubricant sealing surfaces. Basically, Hypermatic is similar to standard, non-compressible materials in its lubricating properties and wetting action. It is available in stick or bulk. Under working conditions, Hypermatic flows into voids and maintains an unbroken film surface. When it comes to rest, as when the valve turning is complete or any void is filled, it again assumes its plastic form with all lubricated surfaces perfectly sealed. The performance could be duplicated to some extent with standard, non-compressible lubricant provided the lubricant screw was turned or some other physical means were used to keep pressure on the lubricant while the valve was being turned. Since Hypermatic is selfenergized, this complete lubrication is entirely automatic over a great number of valve closures.

Hypermatic will not feed into the line despite the fact that it is continually under pressure because although easy flow through the provided lubricant channels occurs, when spread out in a thin sealing film between the valve seating surfaces the lubricant resists replacement. And Hypermatic continues to replenish lubricant to the sealing surfaces even when the lubricant pressure falls far below the line pressure.

KANSAS CITY BUYS 2ND SET OF "FLEXIBLE" POWER BUCKET MACHINES *(even cleans sewers from cramped basement quarters!)*

Within less than a year from the date Kansas City purchased its first set of Power Bucket Machines this equipment had so completely demonstrated its speed, efficiency and versatility that a second set was ordered—another "on-the-job" proof of performance.

Extreme flexibility of the equipment is shown above. This machine was lowered to the basement of a Kansas City factory in a freight elevator to clean a trunk sewer line. "Flexible" Power Bucket Machines go where the job is—on street level or below—and clean lines speedily and at low cost.

Write the nearest "Flexible" office today for your illustrated catalog.

FLEXIBLE SEWER-ROD EQUIPMENT CO.

9059 Venice Blvd., Los Angeles 34, California

141 W. Jackson Blvd., Chicago, Ill. · 401 Broadway, New York 13 · 147 Hillside Ter., Irvington, N. J · P. O. Box 165, Atlanta · P. O. Box 465, Memphis, Tenn.

801 E. Excelsoir Blvd., Hopkins, Minn. · 29 Cordon Ave., Roslindale 31, Mass. · P. O. Box 447, Lancaster, Texas · 41 Greenway St., Hamden, Conn.

3786 Durango Ave., Los Angeles 34, Calif. · 709 House Bldg., Pittsburgh 8, Pa. · 4455 S.E. 24th Ave., Portland 2, Ore.

Choose from America's

most complete line of trucks

for these 4 reasons

1 **International Trucks are specialized** for the job. International builds America's most complete line of trucks. It offers 22 basic models, 1,000 truck combinations ranging in gross vehicle weights from 4,400 to 90,000 pounds. It also offers 13 truck engines (gasoline, diesel, butane) as well as specialized units and parts, to satisfy individual hauling requirements. An International sales engineer who knows your business in terms of trucks helps you analyze your own hauling needs and select the right International Trucks to meet them.

2 **For the 17th straight year** International Trucks lead in heavy-duty sales. The country's most exacting truck buyers are the men who buy trucks of 16,001 pounds GVW and over. Their vote of confidence in Internationals is based on truck value —the same truck value found in every International . . . light, medium, and heavy-duty.

3 **More than half of all International Trucks** ever built—in 42 years—are still at work. International has been building rugged trucks uncompromised by passenger car design or construction since 1907. International Trucks are built to last—and they do.

4 **International Trucks are backed** by America's largest exclusive truck service organization. 4,700 Dealers and 170 Company-owned Branches offer complete International Truck service wherever you drive a truck. Precision-engineered replacement parts, factory-rebuilt exchange units, and factory-trained mechanics are as close as your telephone. For the right truck to solve your hauling problems, see your nearest International Dealer or Branch.

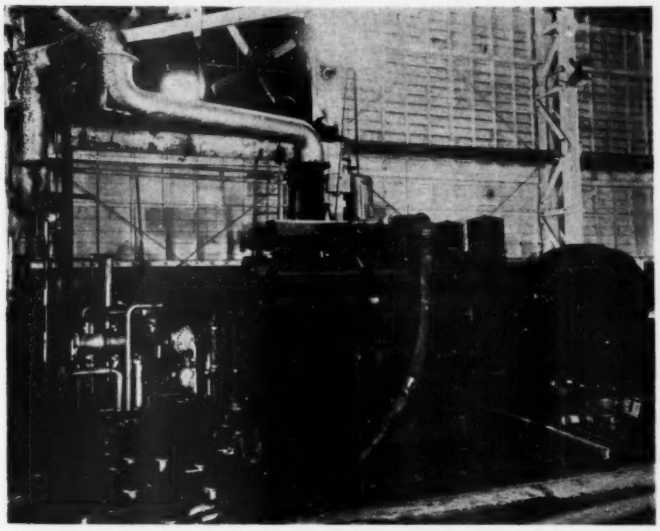
International Harvester Builds McCormick Farm Equipment and Farmall Tractors . . . Motor Trucks . . . Industrial Power . . . Refrigerators and Freezers

Tune in James Melton and "Harvest of Stars," NBC, Sunday afternoons

INTERNATIONAL TRUCKS

INTERNATIONAL HARVESTER COMPANY · CHICAGO

New West Coast Plant for Schoonmaker's Diesels



An interior view of the new Schoonmaker plant at Sausalito, Calif., showing the engine test stand.

The A. G. Schoonmaker Co., Inc., 50 Church St., New York 7, has specialized in remanufacturing, engineering, fabricating, and selling diesel-engine generating units for utilities and municipalities throughout the world. President A. G. Schoonmaker announces the opening of the new plant at Sausalito, Calif., fifteen minutes from the heart of San Francisco. The 9½-acre plant, directed by Plant Manager Halsey H. Lyon, has ample indoor storage accommodations for the engines, generators, and auxiliary equipment. The shop facilities enable the company to full-load test all diesel engines with component parts prior to shipment. This gives the city an opportunity to inspect its diesel unit in operation before shipment.

During the last year the company has installed over 90,000 kw in diesel power, including 5,000 kw for Cliffs Power and Light Company, Ishpeming, Mich.; 4,000 kw for Belem, Brazil; 4,000 kw for Colombo, Ceylon, and 3,600 kw for power generation in East Africa.

Graver Tank Expands

The Graver Tank & Mfg. Co., Inc., East Chicago, Ind., has established the Graver Water Conditioning Co. as a division of the company to extend the operations which have been conducted by the Graver Water Conditioning and Process Equipment Department. This move will enable the company to provide individualized and complete technical, chemical, engineering, manufacturing and erection services.

The products of the Graver Water Conditioning Co. include hot process softeners, de-aerating heaters, zeolite softeners, cation and anion exchangers, demineralizers, clarification and filtration equipment, reactivators, and chemical feeders.

PREMAX

What About House Numbers

A well-planned system of House Numbering is an essential in every city as a means of identifying one home from another, to insure ease in traveling about and to have proper delivery of mail.

May we send you our Special Bulletin, showing the modern, accepted method of using 3" or 4" stamped and embossed metal figures for this task? Complete with full details and charts showing the proper layout for any city.

PREMAX PRODUCTS
DIVISION CHISHOLM-RYDER CO., INC.
5046 Highland Ave., Niagara Falls, N. Y.

PRECISION in waterworks brass

McDONALD DIAMOND LINE

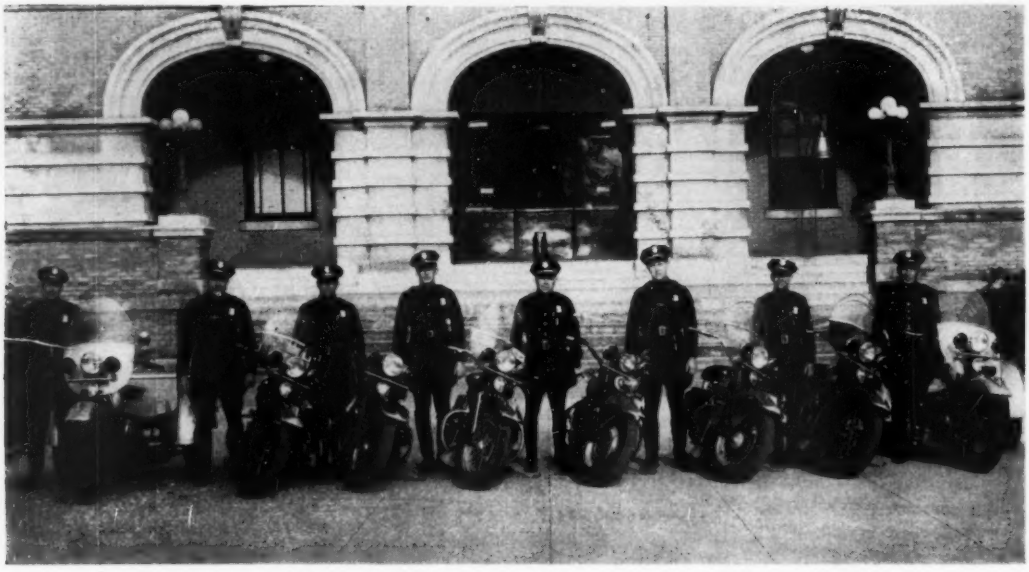
There's always a reason for leadership and McDonald waterworks brass goods are no exception. McDonald precision manufacture from 85-5-5-5 metals means easier installation, longer life and real economy. 93 years manufacturing skill are behind every Diamond Line product.

The corporation stop illustrated (Plate E-3123) is one of the long list of items produced by McDonald. This Diamond Line stop with eighth bend union coupling has inlet threaded to fit Mueller machine. Outlet end is threaded to fit Mueller machine. Tapped inside to be inserted with outside threaded screw plug. Can be furnished with quarter bend couplings when desired. Sizes—½, ⅝, ¾, 1, 1¼, 1½, and 2 inches. Write for information.

A. Y. McDONALD MFG. CO.
DUBUQUE, IOWA

BRASS GOODS · PUMPS · OIL EQUIPMENT

PENSACOLA POLICE ARE 100% HARLEY-DAVIDSON EQUIPPED



Shown is the fine-looking traffic squad of the Pensacola Police Department. Left to right: W. E. Dickson, H. P. Peake, O. Caperton, R. M. Godwin, H. Champa, F. A. O'Neal, J. G. Hall, and E. R. Doll.

PROBABLY nowhere in the United States is traffic heavier than in Florida, especially during the winter season. Pensacola, situated on Florida's beautiful Gulf Coast receives more than its share. Thousands of vacationers pass through the city on U. S. 90, main east-west highway. Traffic control is a constant problem and a heavy work load for the Police Department. To prevent frequent accidents and to enforce regulations more effectively, Pensacola, like hundreds of other cities, turned to motorcycles. And as everywhere else, motorcycles are proving unequalled for making best use of available manpower, for threading through congestion to reach trouble spots quickly, and for efficient all-over patrol. Why not increase the effectiveness of your traffic force by equipping with efficiency-proved Harley-Davidson Police Motorcycles, Servi-Cars and Sidecars? Your local dealer will be glad to bring you complete information on the latest models and their adaptability to your department requirements.

HARLEY-DAVIDSON MOTOR COMPANY, Milwaukee 1, Wisconsin

HARLEY-DAVIDSON

MOTORCYCLES POLICE BETTER TRAFFIC CONTROL **SERVI-CARS**

Parsons and Johnson Finish Plant Expansions

Culminating a building program in progress for more than a year, plant expansions and improvements have been completed at the Parsons Co. in Newton, Iowa, and the C. S. Johnson Co., Champaign, Ill. The two companies are subsidiary branches of the Koehring Co., Milwaukee 10, Wis., manufacturer of heavy-duty construction equipment.

The Johnson Co. designs and manufacures heavy-duty concrete batching and cement handling equipment. Parsons' line of trench excavating equipment includes the world's largest full crawler mounted Trenchliner and the utility-size rubber tire mounted Trenchmobile.

New Plant for Armco

Immediate construction of a new $12-million steel-making plant which can produce 400,000 tons of steel ingots per year has been authorized by the Board of Directors of the Armco Steel Corp., Middletown, Ohio.

Winter Care for Tractors

Allis-Chalmers, Milwaukee, Wis., advises the following for the care of tractors during the cold winter months:

Check the radiator for leaks and see that the hose and gaskets are in good condition. Be sure, before inserting antifreeze, that all connections are tight. Use a permanent, ethylene glycol antifreeze solution in the cooling system of your tractor because it has a boiling point higher than 185° F. By using this, you can keep your engine at a normal operating temperature of 160° to 185° without loss of solution. And test the solution periodically to make sure it is strong enough. Be sure the thermostat, which keeps the engine at the correct operating temperature, is in good working order.

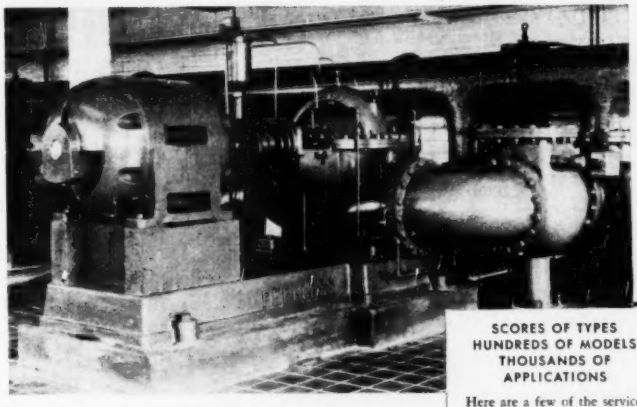
Get a radiator curtain if you don't have a radiator shutter; good side plates are a great help in keeping the engine warm. Be sure the oil you are using is not too heavy—otherwise it will cause such a drag on the starting motor that the engine will not start even though the battery is in excellent condition. And the fuel you used during the summer may be a little heavy for winter operation. After you get the proper fuel, keep it clean and don't forget to drain the sediment sumps under the fuel tank every night.

Be sure the generator is charging properly. The batteries must be kept in good condition to prevent freezing; remember to keep the tops clean, to check the battery reading at frequent intervals, to see that the battery water covers the cell plates. And in temperatures below 32° the specific gravity reading should not be allowed to go below 1.250.

Prolonged idling during cold weather results in low engine temperature; this damages operating parts since normal operation is affected.

Do not forget to cover the exhaust pipe at night; clean the mud and snow out of the tracks and truck wheels and from the support rollers. Then park the tractor on solid ground to prevent it from freezing down.

PEERLESS HORIZONTAL CENTRIFUGAL PUMPS



For continuous or intermittent duty in a host of diversified services

Select the pump you need for the process you use from the diversified line of Peerless horizontal pumps. The pump shown above, a Peerless general purpose pump handling plant process water, typifies a host of efficient Peerless centrifugal pumps which are boosting output and cutting costs for manufacturers and municipalities everywhere. With its comprehensive line of horizontal pumps Peerless can handle chemicals or alkaline liquids, pump clear water or solids in suspension. There are pumps for fluids at high temperatures or they can furnish water or foam for approved plant fire protection. Peerless will move volatile butane-propane or tricky caustics and acids. Pumps are available for all practicable heads and capacities. Duty can be continuous or intermittent. Construction materials are suited to the liquid being pumped. And, backing up their installation qualified Peerless field engineering service is available in all principal cities to see that each pump matches or exceeds customer expectations. Write today for pump engineering information on your process or service. The chart at right lists a number of the types of Peerless horizontal centrifugal pump bulletins in which you'll be interested.

SCORES OF TYPES HUNDREDS OF MODELS THOUSANDS OF APPLICATIONS

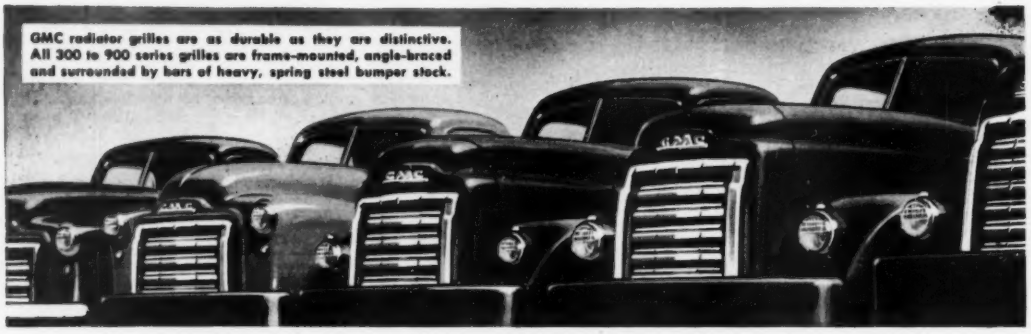
Here are a few of the services which Peerless horizontal pumps can perform. Plan with Peerless. Request copies of the Bulletins you need by Bulletin number.

Pump Service	Bull. No.
Water Supply	B-1300
Fire Protection	B-1500
Chemicals and Oils	B-810
Vaporous Liquids	B-2201
Butane-Propane	B-2200
Boiler Feed	B-806
Sewage and Solids	B-154
Hi-Pressure	B-310
Acids and Caustics	D-2400
Process Services	B-803
All-purpose Pumps	B-2301

Peerless
VERTICAL AND HORIZONTAL
Pumps

fmc PEERLESS PUMPS

PEERLESS PUMP DIVISION
FOOD MACHINERY AND CHEMICAL CORPORATION
Los Angeles, California — Indianapolis, Indiana
District Offices: New York 5, 37 Wall St.; Chicago 40, 4554 N. Broadway; St. Louis 8, 3908 Olive St.; Atlanta Office: Rutland Bldg., Decatur, Ga.; Omaha, Nebr., 4330 Leavenworth St.; Dallas 1, Tex., 3905 Elm St.; Fresno, Calif.; Los Angeles 31, Calif.



GMC radiator grilles are as durable as they are distinctive. All 300 to 900 series grilles are frame-mounted, angle-braced and surrounded by bars of heavy, spring steel bumper stock.

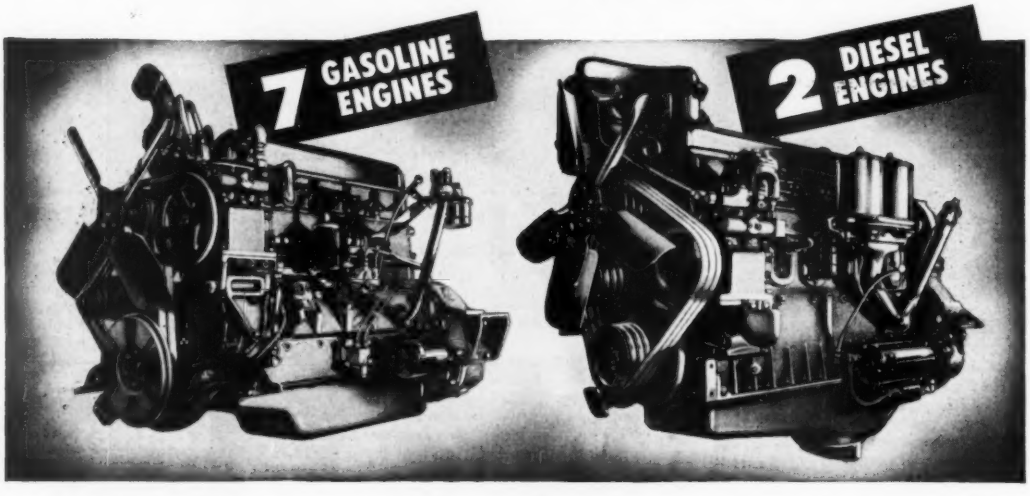
BACK OF THESE "BUMPER-BAR" GRILLES...

Best Engines in the Business

The increasing popularity and acceptance of GMC trucks are reflected in current registration figures which show GMC making substantial gains in new truck sales. In fact, new GMC truck registrations are the highest in the Company's history according to latest available figures.

Much of this increase can be attributed to the famous GMC truck-built engine line... because everyone recognizes the engine as the "heart" of any motor truck.

GMC now offers an engine range to fit every vocational requirement. Each engine, gasoline or Diesel, is the most powerful in its class with the most advanced features of design and construction ever offered by GMC. From every angle GMC truck engines are the "best in the business"... from every angle the best for your business.



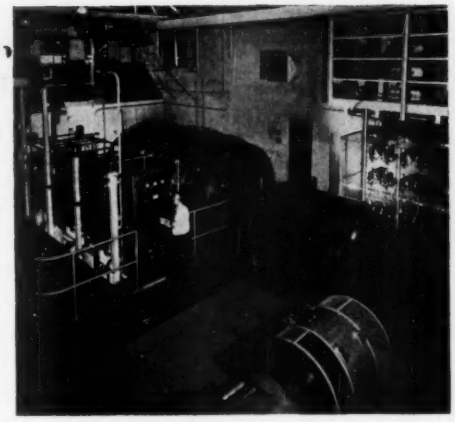
GMC gasoline engines range from 228 to 503 cu. in. displacement and from 95 to 190 horsepower. From the smallest to the largest, they are all GMC-built... all of war-renowned "Army Workhorse" design.

GMC
GASOLINE • DIESEL
TRUCKS

GMC Diesel trucks are powered by famous GM 2-cycle four and six cylinder Diesel engines that are outstanding for light weight and great economy. The four develops 133 horsepower; the six provides 200.

GMC TRUCK & COACH DIVISION • GENERAL MOTORS CORPORATION

Line Material Opens Laboratory



Pictured is the world's largest high-speed, 60-cycle generator designed exclusively for test purposes in the new Short Circuit Laboratory at South Milwaukee, Wis., opened by the Line Material Co., 800 No. 8th St., Milwaukee 1, Wis.

Cochrane Appoints Applebaum

The Cochrane Corp., 17th St. and Allegheny Ave., Philadelphia 32, Pa., has appointed Samuel B. Applebaum as manager of its cold process water treating division. He is also vice-president of the Liquid Conditioning Corp., an operation subsidiary of Cochrane.

S. B. Applebaum

Mr. Applebaum's previous positions included those of vice-president of the Permutit Co., and later president of the Liquid Conditioning Corp.

Dorr to Move Headquarters

In December the Dorr Co. will move its main office from 570 Lexington Ave., New York, N. Y., to Stamford, Conn., in order to provide larger office space and better working conditions. An office will be continued at the present New York City address.

Pump Improvement On Dual Fuel Engines

The Worthington Pump and Machinery Corp., Harrison, N. J., is now building as standard equipment, dual plunger fuel pump and automatic thermal air control on its dual-fuel diesels. The result is greater efficiency and smoother operation over a wide load range.

The dual plunger fuel pump incorporates in one unit the requirements for a pump to handle the full load of the engine on oil operation, and at the same time provides the most effective method of handling the small quantity of pilot oil for burning the gas fuel.

A small diameter pilot plunger, mounted in tandem with the main plunger, produces perfect atomization with short, localized penetration into the combustion chamber, resulting in lower firing pressures. Lower exhaust temperatures and improved fuel consumption are direct indications of more efficient combustion.

Automatic thermal air control provides the correct air fuel ratio at all times and in direct relation to all load changes. Actuating this control is the engine exhaust temperature. And daily and seasonal ambient air temperatures can be compensated for by simple adjustment of the controller setting.

Salt Water Pool at the Beach Club Cat Cay, Bahamas, painted with Phelan's Hydroflex

Paint Your Pool with Rubber!

Phelan's HYDROFLEX Rubber-Base Finish Gives Beauty and Low-Cost Upkeep

Elasticity and durability are built into this special rubber-base finish. It stands up and keeps its beautiful color under tropical sun or winter frost. Easy to clean because slimy algae can't cling to its satiny tile surface.

Pool owners from coast to coast get two season's wear from Phelan's Hydroflex—investigate now!

FREE! Folder showing COLOR SAMPLES and full information. Write

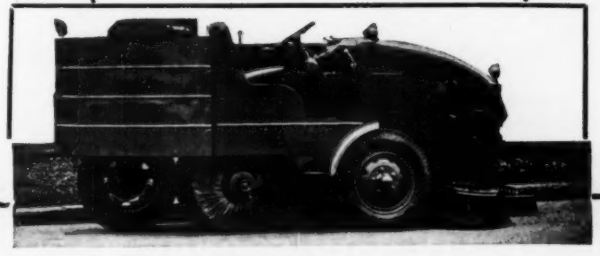
PHELAN-FAUST PAINT MFG. COMPANY
St. Louis 11, Mo. Since 1902

Phelan's HYDROFLEX RUBBER BASE Swimming Pool Finish

South Bend

GUTTER-SNIPE

Model "Z" Pick-Up Street Sweeper



Sweeps 6 feet wide
Holds 1¼ yards dirt
Turns in 19-ft. circle
Can sweep up a 10% grade
Has three sweeping speeds

We also manufacture SOUTH BEND "Big 6" Street Flushers, Bituminous Distributors, Bituminous Maintenance Units, and Gravity and Pressure Sprinklers.

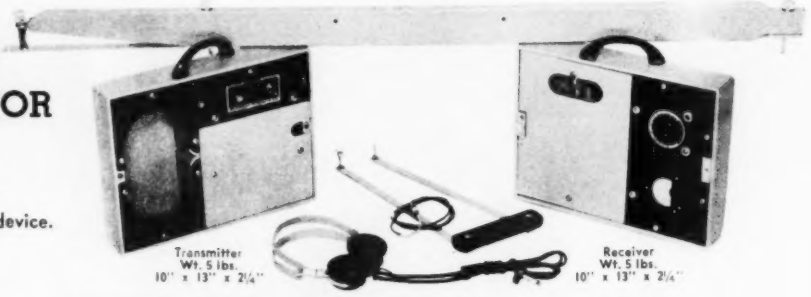
Municipal Supply Company, South Bend 23, Indiana, U. S. A.

Export Department — 44 Whitehall Street, New York 4, N. Y.

Quality
WILKINSON
LINE LOCATOR

- Light but Powerful
- Simple one-man tool that does the job that stymies the ordinary device.

Write for complete Literature and Prices



Originators of lightweight, all-purpose Quality Locators

WILKINSON PRODUCTS CO.

P. O. Box 1774, Wilshire-La Brea Station
Los Angeles 36, Calif.

WORTHINGTON-GAMON

LIQUID METERS

All Sizes All Types

Worthington-Gamon Meter Co.
Subsidiary
WORTHINGTON PUMP & MACHINERY CORP.
296 South Street Newark 5, New Jersey

Smash-Hit
GRILLE GUARDS
Give your fleet Uniform Appearance

SMASH—HIT is scientifically engineered to guard vulnerable truck parts. Made of 1" cold rolled solid steel rods equal in strength to 2" pipe. Chromium-plated for extra beauty and to prevent rust, SMASH-HIT is easily installed and braces rigidly to frame and bumper.

Write TODAY for complete information and prices

THE PERRY COMPANY
909½ AUSTIN AVENUE • WACO, TEXAS

For Real Gas-purifying Power
CONNELLY IRON SPONGE

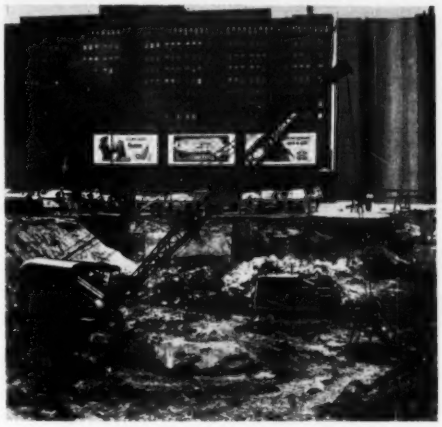
● To get top efficiency in gas-purification at the lowest cost, use Connelly Iron Sponge. It's the finest purification material to be had.

Connelly Iron Sponge has a high degree of activity. It gives longer service before fouling. It revivifies more quickly. Leading gas companies have been using this "blue-ribbon" purification material for years—they know it can be relied upon to do the best job.

If you have a problem in gas-purification, take advantage of Connelly's 71 years of experience. Our engineers will be glad to help you . . . there is no obligation. Consult Connelly!

CONNELLY, Inc.
3154 S. California Ave. Chicago 8, Illinois
Elizabeth, N. J. Los Angeles, Calif.

Construction Starts on Chicago Superhighway System



Beginning at the downtown end, construction has begun in the making of a double-deck Wacker Drive Extension that will join Wacker Drive with the Congress Street Superhighway. Here an International TD-18 crawler tractor clears debris in the basin of excavation while a Lorain crane with a clamp-bucket stands by to load into the trucks.

New Dallas Warehouse For Chain Belt Co.

The Chain Belt Co., 1600 W. Bruce St., Milwaukee 4, Wis., has opened a new modern warehouse for the Dallas district sales office at 1611 Dragon St., Dallas, Texas. The company's local distributors will now be able to supply prompt delivery on Rex and Baldwin-Rex units, transmission parts, shafts, sprockets, speed reducers, bearings, pulleys, and special assistance can be given on planning, machining, and assembly of unusual power transmission and conveyor requirements.

About "Meterads"

The Meterad Corp., Pasadena, Texas, offers a one-year contract, assigning to the City a substantial percentage of the gross receipts from advertising, and insures each Meterad for $50,000 and $100,000 against being involved in an accident that causes bodily injury. Thus the City is said to be relieved of all liability claims.

Meterads as indicated in the photograph, are three-sided display signs 7¼ by 8 inches of 20-gage metal with porcelain-enamel faces. Present monthly advertising rates are $1 per side or $3 per sign or per meter. Signs which are not carrying advertising can be used freely by the City for stressing fire prevention, safe driving, or a clean-up campaign. A copy of contract form will be sent to any city official requesting it.

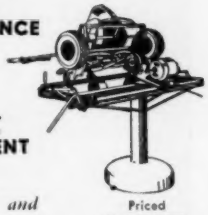
THE MODERN LAWN MOWER SHARPENER

CUTS MAINTENANCE COSTS

•

LOWER CAPITAL INVESTMENT

•



Economically and Quickly Sharpens All Municipal Mowers

Priced $241.50 (less motor)

Sharpens All Reel Type Mowers • Hand, Power or Gang • 10 to 20 Minutes • No Dismantling No Extra Attachments Needed

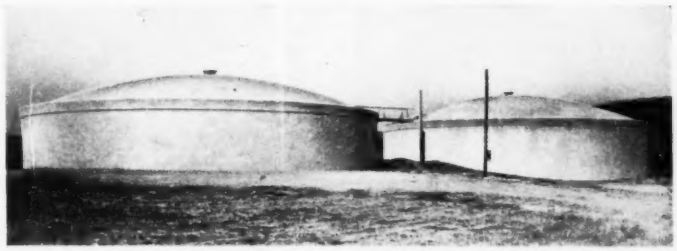
All reel type mowers, from 5-inch edgers to 36-inch power mowers, are quickly sharpened to extreme ends of both left and right twist reel blades. Handle, wheels, roller and motor remain in place when sharpening is in process. Bed knife is sharpened in same brackets that hold mower in grinding position. No extra attachments required. One lever puts mower or bed knife in grinding position. 100% steel construction. Grinding head rides on five ball bearing races. Small, compact, easy to operate. Sharpens wood chisels, joiner knives and planer blades without extra attachments. Skate Sharpener Attachments available.

1/3-hp. G.E. 60-cycle Motors now available—$21.50 extra.

Send for Free Bulletin No. 25B

ORDER NOW • IMMEDIATE DELIVERY

MODERN MFG. CO.
160 N. FAIR OAKS AVE. • PASADENA 1, CALIF.



PRE-STRESSED "GUNITE" TANKS

Above are shown two 80' diameter 750,000 gallon pre-stressed "GUNITE" water storage tanks with "GUNITE" dome roofs. We built these tanks in 1943 for the Borough of Schuylkill Haven, Penna.

Pre-stressed "GUNITE" produces a water storage tank which is bottle tight and maintenance free. They may be built either at ground level, completely underground with earth covering over the dome roof, or may be in the form of standpipes or elevated tanks.

Our experience in this field includes scores of tanks and silos of many types ranging up to two and one-half million gallons capacity.

The use of "GUNITE" for repair and construction of reservoirs, bridges, buildings, etc., is illustrated and described in Bulletin D-2400. We will gladly send a copy at your request. On your letterhead, please.

CEMENT GUN COMPANY
"GUNITE" CONTRACTORS
GENERAL OFFICES—ALLENTOWN, PENNA. U.S.A.
MANUFACTURERS OF THE CEMENT GUN

Maintenance

made easy and economical with the

OLIVER-HENKE MAINTAINER

Here's a light, economical road maintainer that gives you many features usually found only on much heavier, more costly machines. Rugged construction . . . finger-flip hydraulic controls . . . blade angle easily adjusted from driver's seat . . . leaning wheels . . . hydraulic scarifier . . . hydraulic steering . . . 12-foot blade . . . plus many other important advantages are yours with the OLIVER-Henke Maintainer.

The powerful OLIVER Model 88 Industrial Tractor gives the unit plenty of power for economical maintenance of gravel and dirt roads and light ditching work. The famous OLIVER "Fuel Miser" engine with variable speed governor assures minimum fuel consumption. The entire unit is easily accessible for service. All wearing parts can be inexpensively replaced if necessary. And, if desired, the tractor can be readily removed from the Maintainer and a front-end loader quickly installed.

For efficient, economical road maintenance, the OLIVER-Henke Maintainer will effectively augment your heavy equipment and do a large share of the work at reduced operating costs. Ask your OLIVER Industrial Distributor to show you the outstanding economy of this unit.

The OLIVER Corporation

Industrial Division: 19300 Euclid Avenue, Cleveland 17, Ohio

"THE SIGN OF EXTRA SERVICE"

A Complete Line of Crawler and Industrial Wheel Tractors

Truck-Mounted Crane Doubles As Snow Plow

The Lorain Moto-Crane is a rubber-tired crane that converts into a snow plow with the tractive effort of 6-wheel drive. Highway speeds are 30 mph and its rubber-tired mobility gets it from job to job in a hurry. The machine is manufactured by The Thew Shovel Co., Lorain, Ohio.

Advertisements On Parking Meters

A source of new revenue from parking meters is offered by Meter-Ad Corp. of America, 6 State St., Rochester 4, N. Y.

The Meter-Ad is a patented device to display advertising on parking meters of any type. It is an aluminum die casting with the ad between two panels of plate glass. By the contract, the municipality assumes no investment, expense or responsibility. The Meter-Ad Corporation installs the Meter-Ads, services them and procures advertising for them, paying the municipality a substantial part of its gross receipts.

Sheusner Named Chief Engineer

John H. Sheusner has been appointed chief engineer for the Enterprise Engine & Foundry Co., 18th and Florida Sts., San Francisco 10, Calif., with jurisdiction in the oil burner division and the food process machinery division, as well as marine and stationary diesel engine operations.

J. H. Sheusner

Mr. Sheusner has been with the company for the past five years as chief design engineer in charge of all new design developments incorporated into the complete line of Enterprise diesels.

American Vacuum Leaf Loader

Solve your leaf or clean-up problem

Write for leaflet

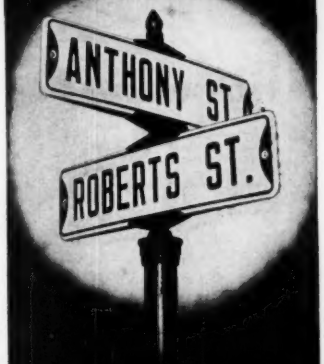
LEAF LOADER DIVISION

American Structural Steel and Tank Co.

21050 W. 8 MILE ROAD DETROIT 19, MICH.

Beautiful. Legible. Low-Priced

STREET NAME SIGNS



WRITE FOR CATALOG

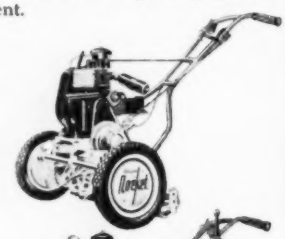
Cataphote Corporation

TOLEDO, OHIO

POWER LAWN MOWERS by Eclipse

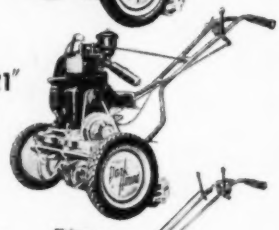
Only Eclipse offers all of the features looked for in power lawn mowers. These are the outstanding and exclusive features that assure trouble-free, long lasting and economical mowing perfection.

A complete line of power mowers provides exactly the right model to satisfy every grass cutting requirement.



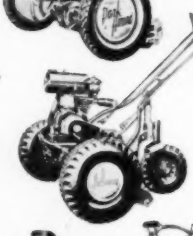
ROCKET 20″

This popular favorite is unexcelled in performance and economy. Excellent for maintaining beautiful lawns of schools and public buildings.



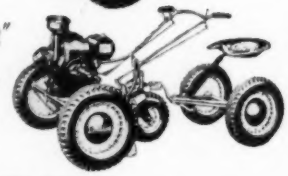
PARKHOUND 21″

Perfect for cemetery use, this durable model offers unmatched mowing of from two to four acres per day at minimum cost.



ROLLOWAY 25″

Preferred for larger areas such as parks, the full swivel caster-wheel permits short turns in close quarters. Plenty of power for steep slopes and terraces.



SPEEDWAY 32″

Large lawn areas are smoothly mowed at the rate of a 32″ swath 100 yards long every 30 seconds. Easy handling and operator comfort are provided by the sulky.

WITH THE PREFERRED POWER OF

No mixing of gas and oil—less smoke—less noise.

4 CYCLE BRIGGS & STRATTON GASOLINE ENGINES

Nation-wide service.

THE ECLIPSE LAWN MOWER CO.
1810 Railroad Street, Prophetstown, Illinois

ANTHRAFILT

(Reg. U. S. Pat. Off.)

A Filter Medium For All Purposes

Has outstanding advantages over sand and quartz media:

1. Length of filter runs doubled
2. Only about one-half as much wash water required
3. Less coating, caking or balling with mud, lime, iron or manganese
4. Filters out of service less because of shorter wash cycle
5. Better removal of bacteria, micro-organic matter, taste and odor
6. Increased filter output with better quality effluent
7. Not just the top portion, but the entire bed, aids in filtering
8. Can be used in all types of filters using a filter medium
9. A perfect supporting medium for synthetic resins
10. An ideal filter medium for industrial acid and alkaline solutions
11. Decidedly advantageous for removal of fibrous material as found in swimming pool filters

Additional information, recommendations and quotations furnished upon request

by

PALMER FILTER EQUIPMENT COMPANY
822 E. 8th St. Erie, Pa.
Engineers and Sales Agents

REPRESENTING —

ANTHRACITE EQUIPMENT CORP.
Anthracite Institute Bldg., Wilkes-Barre, Pa.

Make Water Safe . . .

Specify Solvay Liquid Chlorine!

Here's the difference! The name Solvay is a guarantee—maintained for more than two generations—of purity and performance, uniformity and controlled quality.

—You get quick delivery, too. Solvay Liquid Chlorine is shipped in cylinders, tank cars or ton containers straight to you from three strategically-located plants.

For Water Conditioning

SOLVAY

LIQUID CHLORINE
SODA ASH

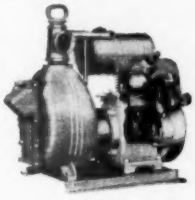
- Outstanding Uniformity
- Laboratory-Controlled Quality

SOLVAY SALES DIVISION
ALLIED CHEMICAL & DYE CORPORATION
40 Rector Street, New York 6, N. Y.

Western Snow Removal

A patrol grader made by the Caterpillar Tractor Co., Peoria, Ill., windrows the snow and a Tracks-on Traxcavator boosts it into the trucks. The picture of street department equipment was taken last winter at Cheyenne, Wyo.

New Sterling Machinery Pump



The Sterling Machinery Corp., 405 Southwest Blvd., Kansas City 8, Mo., announces a new high-head, self-priming pump that is actually a heavy-duty unit capable of pumping large capacities and against high heads while maintaining a weight light enough to make it readily portable.

The pump is suitable for a wide range of service such as emergency fire protection; repairs to gas, sewer, and water mains; pumping out barges, manholes, septic tanks, flooded basements and flooded areas; washing boilers and tanks; pumping through long pipelines and to high levels and against comparatively high pressures.

The new pump was first exhibited at the Public Works Congress and Equipment Show in Kansas City from September 18 to 21.

California AWWA Exhibitors

The following members of the Water and Sewage Works Manufacturers Association, Inc., have reserved exhibit space at the forthcoming Convention of the California Section of the American Water Works Association, to be held at the Civic Auditorium, Sacramento, Calif., October 26-28, 1949:

Southern Pipe & Casing Co.
Builders-Providence, Inc.
AMERICAN CITY MAGAZINE, THE
Badger Meter Mfg. Co.
Pacific States Cast Iron Co.
McWane Cast Iron Pipe Co.
Water Works Engineering
American Cast Iron Pipe Company
Fisher Research Laboratory, Inc.
James Jones Co.
Art Concrete Works
Consolidated Western Steel Corp.
M. Greenberg's Sons
Homelite Corporation
R. W. Sparling
Rich Mfg. Co. of California
Pittsburgh-Des Moines Steel Co.
Smith-Blair, Inc.
Pittsburgh Equitable Meter Division, Rockwell Manufacturing Company
Hersey Manufacturing Co.
Inertol Co., Inc.
Western City Magazine
Chicago Bridge & Iron Co.
Armco Drainage & Metal Products, Inc.
Mueller Company
Barrett Division, The Allied Chemical & Dye Corp.
Flexible Underground Pipe Cleaning Co.
American Pipe & Construction Co.
Johns-Manville
Rensselaer Valve Co.
Neptune Meter Co.
Thomson Meter Co.
Wallace & Tiernan Co., Inc.
George P. Forni
United States Pipe and Foundry Co.
Water Works Supply Co.
Dresser Manufacturing Division, Dresser Industries, Inc.

ROLL YOUR OWN TRAFFIC LINES
with the new, easy-to-use economical and lightweight
LITTLE GIANT HANDI-LINER*
THE SPEEDY HAND-OPERATED LINE PAINTER
*pat. pending

The new "Little Giant" Handi-Liner is used and endorsed by government agencies, state and municipal road commissions and leading business organizations. Saves time and money. Paints perfect traffic lines almost as fast as operator can walk. Long-lasting, sturdy. No moving parts to get out of order. Uses any good traffic paint.

only $24.50 complete
Highest quality Line-marking Paint: white, $2.70 gal. Yellow, $2.85 gal. F.O.B. Baltimore, Maryland.

ORDER TODAY! 2-year guarantee should last a lifetime!
WRITE FOR CIRCULAR & ADDITIONAL INFORMATION
LASTING PRODUCTS CO.
paint manufacturers
Franklintown Rd. Plant Balto. 23, Md.

$5.22 a ton for Asphalt
IS WORTH SAVING!

THE Foote Kinetic Asphalt Mixer will give you 8 to 10 more batches from a barrel of asphalt. One user* has reported savings of $5.22 a ton. They used to buy their material for $10.50 a ton. Now they make it with the Foote Kinetic Asphalt Mixer for $5.28 a ton. $5.22 a ton is worth saving! Such savings will soon pay for your Foote Kinetic Mixer.

You cannot compare the Foote Mixer with an ordinary concrete mixer either from the standpoint of construction or the finished product. Let us send you complete details. Ask for Bulletin K-100.

*Name on request.

- 3 cu. ft. in 30 seconds.
- High output for low investment
- Handles any cold mix without auxiliary equipment. Can handle hot mixes in conjunction with kettles.
- Fully portable.
- New mixing principle thoroughly coats every particle of aggregate. Gives you 8 to 10 more batches out of every barrel of asphalt.

the FOOTE Kinetic mixer
A BLAW-KNOX PRODUCT

THE FOOTE CO., INC.
Subsidiary of Blaw-Knox Co.
1958 State St. • Nunda, New York

Get Your Office Copies Faster at Lower Cost

WITH THE NEW IMPROVED Portagraph

NO DARKROOM NEEDED. BETTER COPIES THAN EVER.

New lighting control gives better light distribution, makes better copies of your records. New design in the pressure pad assures even contact and sharp, clear reproductions. Automatic electric timer controls exposure. Portagraph does not require a darkroom. It may be used in ordinary subdued office lighting. Development of photocopies is a simple operation requiring a minimum of space and equipment.

COPIES TWO-SIDED RECORDS AND THOSE ON OPAQUE STOCK.

Portagraph copies all records—typed, written or drawn. They can be on white or colored material, *even on heavy card stock*. They can be *one or two sided*. Portagraph copies from cloth and film as well as from paper records. There is a Portagraph sensitized paper for every copy purpose, pre-cut to standard sizes to reduce waste and eliminate trimming costs.

THE BEST CONTACT PRINTER FOR AN OFFICE THAT I'VE SEEN.

The new Portagraph makes completely accurate copies; eliminates costly errors, proofreading and correcting. It makes copies quickly, frees your typists for more important work. It is simple to operate; a clerk or office boy can use it. Built of steel for long service, and attractively finished in Gray-Rite, the new Portagraph looks well in any office.

FREE BOOKLET sent on request. See how the new Portagraph will give you more accurate copies of your records, faster and at lower cost. Write to Remington Rand Inc., Room 287, Photo Records Division, 315 Fourth Avenue, New York 10, N. Y.

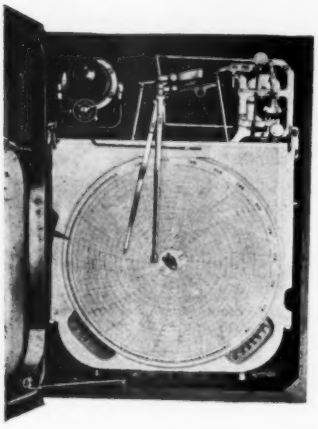
Remington Rand

FOR GREATER BUSINESS EFFICIENCY—USE RECORD PHOTOGRAPHY

Control Instruments Are Operated by Air

The Bristol Co., Waterbury, Conn., has announced a new line of air-operated control instruments for automatically controlling pressure, flow, liquid level, pH value, temperature, and humidity.

Offered in five types of control action —on-off, proportional, reset, derivative,



and reset plus derivative—the new instruments have calibrated control actions. The mechanisms have only one service adjustment, and this puts the system in exact calibration after it has been disassembled for part replacement.

H. W. Dodge Joins Mack, Caley Appointed Manager

J. G. Caley

Henry W. Dodge

Henry W. Dodge has joined Mack Trucks, Inc., Empire State Bldg., New York, N. Y., as executive vice president with special responsibility for sales and advertising, it has been announced by E. D. Bransome, president and chairman of the board.

A veteran sales executive, Mr. Dodge was associated for many years with the Texas Co. as vice-president and general sales manager. He will make his headquarters in Mack's New York City office.

John G. Caley, appointed district manager of the Birmingham, Ala., factory branch, was with the Carley Trailer and Equipment Co. of Atlanta before joining Mack. Before that, he was vice president and general manager of Transportation, Inc.

New Tandem Rollers

The Buffalo-Springfield Roller Co., Springfield, Ohio, is putting on the market three new variable-weight tandem roller models: the KT-14, from 5 to 7 tons; the KT-19, 8 to 12 tons; the KT-20, 10 to 14 tons.

Furnished with either gasoline or diesel engine, the models have a gear-type oil pump that supplies the low-pressure hydraulic steering system. Two high speed-low torque clutches

permit reversing the roller without shifting gears. A self-energizing, hand-operated scarifier is available as optional equipment.

FROST BOTTOMS ARE "RIGHT"
IN BUFFALO-MADE METERS, BECAUSE THEY ARE
PRE-TESTED FOR BREAKING PRESSURE
● If you could visit the Buffalo Meter factory you would see how Frost Bottoms are pre-tested for correct breaking pressure. The 400 pound compressed air test shown above guards against defects.
AMERICAN BRONZE CASE
NIAGARA GALV IRON CASE
WATER METERS
BUFFALO METER COMPANY
2902 MAIN STREET, BUFFALO 14, N. Y.

KA-MO *Giant* Earth Drill

36 INCH DIAMETER! 155 FEET LONG!

The *KA-MO Drill* illustrated is being delivered to a pipeline construction job in the South, to drill a 36" *diameter hole*, 155' *long*, under a railway embankment.

The oil pipeline, 36" in diameter, will go through this *drilled* hole, *under the track*, instead of requiring the excavation of an open trench across the railroad right of way. No hand trenching, no sheeting, no temporary track support, no back-filling, no disturbance of track surface, so a tremendous amount of time, labor and money will be saved.

KA-MO is not an auger which buries itself in the ground—but a *drill* which cuts the earth clean all around the edges of the hole, making it easy to remove the *drill* and the earth it has cut loose.

Vertical and Diagonal Holes, too!—KA-MO *DRILLS* holes fast for poles, posts, pipe, cable, conduit, anchor posts, etc.

Replace Augers with a KA-MO Drill—If you have a power take-off, you can replace your *auger* with a KA-MO *DRILL*. It *drills* its way through earth too tough to be bored. Use our special KA-MO *Slip Clutch* between gear-head and drill, and save wear and tear on your truck.

Not Just a Summer Tool

The KA-MO *DRILL* can be used the year 'round. It cuts through frost, hardpan, tree roots and other obstructions.

KA-MO *Drills are available in diameters from* 3" *to* 36".

The sections shown in the illustration will be hooked together, one at a time, to extend the drill to 155'.

INVESTIGATE!
Keep Your Important Work Going The Year 'Round With
KA-MO EARTH BORING EQUIPMENT

4012

KA-MO TOOLS, INC.
2121 S. Troy Street • Chicago 23, Illinois

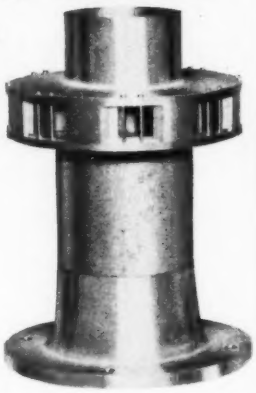
A SCREAMING NEW WARNING SIGNAL

NEW B & M MODEL 10
(10" Rotor)
GENERAL ALARM SIREN

•

"IT PIERCES THE AIR"

•



The most effective siren of its kind.
SIREN PROPER: ROTOR—10" dia. 15" high.
WEATHER SHIELD: 15" dia. 30" high.

Every community—large and small—can use this new B & M warning signal effectively. The peculiarly penetrating qualities of the B & M TWO-TONE piercing notes arouse people instantly—move them to protective action—everywhere—against fires and other impending destructive hazards. Like all B & M Sirens, "IT PIERCES THE AIR"—is heard far and above the combative interference of other noises.

This new B & M Siren is quality built throughout: Has long wearing construction, is unfailing in time of need, and instantaneously develops the needed warning signal . . . Not a split second lost. . . . That's why this B & M General Alarm type is so broadly in demand for general alarm use, in municipalities generally and specifically for: Small communities employing volunteer fire departments; for harbors, airports, railroad yards, mines, forestry protection and scores of kindred safety and accident prevention applications.

BRIEF SPECIFICATIONS:

MOTOR: Specially designed, high-speed, series wound — over 2 HP capacity. . . . ROTOR: Dynamically balanced, heat treated. . . . ROTOR SPEED: Test rated for safety at 18,000 RPM. Average operating speed—9,000 RPM. . . . BEARINGS: New Departure ball bearings. . . . AIR VEINS: Patented B & M develops high intensity piercing warning signals. MOUNTING: Designed for quick installation on any flat surface. . . . WEATHER HOOD: Baked on special black finish. Stands up to all tough weather conditions. . . . SOUND DISTRIBUTING CONE: B & M special inverted design evenly projects warning at maximum strength for maximum distance.

SIRENS B & M ALSO MANUFACTURERS:

1. Automotive: Electric—Motor driven.
2. Friction: Driven from fan rim, crank shaft extension, flywheel or tire (motorcycle).
3. General Alarm: Electric—4 sizes: 6"—10"—15"—20".

WRITE for full information about these fine 35-year reputation sirens. (P.S.: B & M is the oldest siren manufacturer).

B & M Siren Manufacturing Co.

Sirens For Every Warning & Signal Use

765 E. Pico Blvd. Los Angeles 21, Calif.
PRospect 0409

A 35-YEAR REPUTATION

Records show B & M to be the oldest and best known siren manufacturer. If you have a potential warning signal problem of any type, WRITE.

Snow Melting Sidewalk

Glass plus heat below the sidewalk surface in front of the Duquesne Club in Pittsburgh, Pa., eliminates snow shoveling and guarantees smooth and non-slip walking despite heavy snows.

The heat is applied by warm water circulating through pipes embedded in the walk covering an area 86 feet long by 9 feet wide. About 800 square feet of two-inch cellular glass insulation, PC Foamglas, is laid beneath the pipes to prevent heat loss to the underground structure beneath the sidewalk.

The pipe was manufactured by A. M. Byers Co., Pittsburgh, Pa., and the PC Foamglas is from the Pittsburgh Corning Corp. of Pittsburgh.

Rubber Coupling Joint For Vitrified Clay Pipe

The Universal Sewer Pipe Corp., Union Commerce Bldg., Cleveland, Ohio, is producing a rubber coupling

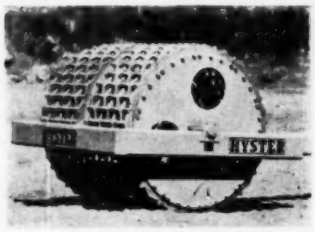
joint for vitrified clay pipe that gives multiple rubber sealing and full floating and cushioning flexibiliy in angular and lengthwise movement.

Tylox couplings, which are preassembled, are resistant to acids, alkalies, and waste material. The coupling joints are self-locking and leak proof and permit leveling and bedding of the line to grade. They are designed with self-centering spigot and bell.

Grid Roller Has Two Uses

The new Hyster grid roller can be used to compact earth or to salvage bituminous pavement. As the former it compacts to a great density with comparatively few passes and it can be towed at high speed. As the salvage tool, it breaks up and partially pulverizes road mix or black top pavements after the scarifying has been done, and compacts the subgrade after the old pavement has been windrowed to the side; later it compacts the fill of replaced broken-up blacktop preparatory to final surfacing. Such jobs exist frequently in street construction and maintenance, and in the construction of airports, dams, fills.

The machine is essentially two 5-foot-diameter wheels or rollers attached to a frame that is towed behind a tractor or motor grader. Each wheel is 32 inches in width and made of ten replaceable sections of heavy, heat-treated alloy steel grid segments bolted onto circular side plates. When cleaning of the grids is necessary, it is accomplished by a cleaning roller with cast teeth which mesh on the inside periphery of the grid wheels. This cleaner device is optional.



A close-up of the grid roller.

The manufacturer is the Hyster Co., Portland 8, Ore.

Give Us More

Revere

ELECTRIC MFG. CO. CHICAGO, ILL.

FLOODLIGHTED PLAY FIELDS

and we'll have fewer complaints about neighborhood disturbances. It's the surest way of reducing juvenile delinquency.

Write for Our CATALOG

Get the REVERE "Floodlighting for Nighttime Sports" Catalog and you'll have a valuable working tool to help you plan all kinds of nighttime playing fields at low cost. Catalog is replete with illustrations and diagrams and should be in the hands of recreational directors and civic minded executives.
For years REVERE has helped Municipalities everywhere plan playground projects!

REVERE ELECTRIC MFG. CO.

6015 BROADWAY — *Indoor and Outdoor Lighting Equipment to Serve Every Need* — CHICAGO 40, ILL.

Provide for TIFA in your budget

. . . FOR BETTER HEALTH
. . . FOR FLY AND MOSQUITO CONTROL

. . . DEATH-DEALING FOG FOR INSECTS

Solve your fly, mosquito, weed and health problems *quickly* and *efficiently* with TIFA—a compact, easily-handled applicator powered by its own standard-make gasoline engine.

TIFA discharges newly-developed as well as older-type insecticides and hormones of the selected particle size in a *true, clean fog* . . . spreads rapidly over wide areas . . . clings to all objects in its path . . . permeates smallest crevices.

TIFA is essential to your community's health and well-being. Use TIFA on garbage and fill dumps . . . in thickly populated areas . . . over swamps—wherever people congregate and insects annoy them. It's portable, economical, built-to-last.

Put TIFA to work for you!

TIFA **TODD INSECTICIDAL FOG APPLICATOR**

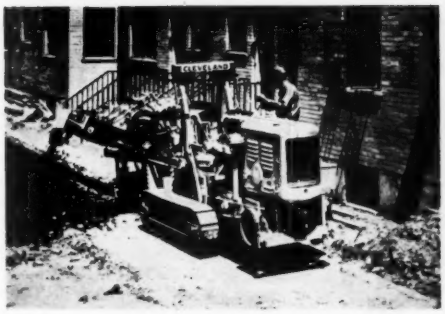
Write for illustrated folder on sensational **TIFA** — full details, official comments.

A Product of
COMBUSTION EQUIPMENT DIVISION

TODD SHIPYARDS CORPORATION

81-16 45th Ave., Elmhurst, Queens, N. Y.

Small Trencher For Many Jobs



The Baby Digger Model 92 is engineered especially for gas, water, and sewer house service trenching. It also does an excellent excavating job for power cable and conduit, for house and building footings, and for airport and street drainage and irrigation. Its small sizes makes it easy to maneuver. The machine moves quickly from site to site on its rubber-tired tilt-bed electric-brake trailer. Its ditch capacities are a maximum of five feet deep and 10 to 20 inches wide. It has clog-proof crawler tracks, operator-controlled power-shift conveyor, patented Presto-Points for quick replacement of rooter teeth, and a crumbing shoe that gives perfect grading and a clean trench bottom. Close work near obstructions is another feature of this machine manufactured by the Cleveland Trencher Co., 20100 St. Clair Ave., Cleveland 17, Ohio.

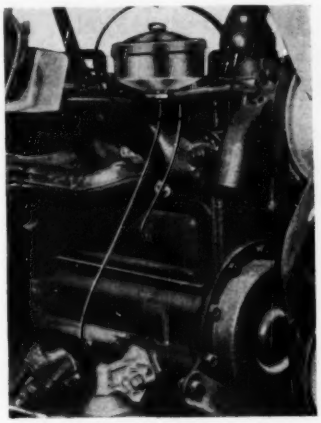
Hydrant Marker Saves Time, Damage

The Sno-Mark and bracket attachment.

Locating snow-covered hydrants day or night has been simplified by a new blazer mounted on a three- or four-foot pole which has a permanent mounting clamp that fits all hydrants. Manufactured by the American Metal Products Co., 34 Southbridge St., Worcester, Mass., the Sno-Mark costs as little as a dollar per installation. It is made of a 7-inch luminescent red or red-enamel metal flag attached to the steel pole which locks into a universal bracket that is permanently attached to any hydrant.

Lifetime Oil Filter Cuts Down on Servicing

The lifetime oil filter made by the Filterall Filters Co., 440 Seaton St., Los Angeles 13, Calif., is available for all cars, trucks, and tractors. The big news about this filter is that it has a permanent non-clogging element that is guaranteed not to wear out or to require replacement parts of any kind.



The filter on a gasoline engine.

When the Filterall element becomes dirty it is only necessary to dip it in gasoline and replace it in the filter—a two or three minute operation. Should the element become loaded or overloaded with sludge because it has not been cleaned periodically, a specially designed automatic by-pass spring allows the oil to pass between the top of the element and the cover gasket.

The porous element permits the passage of oil, but dirt or abrasive particles larger than a micron (.000039 of an inch) are filtered out.

PIPE FITTINGS

Warren fittings, like Warren pipe, are made in all sizes and to all standard patterns for use with cast iron pipe of standard designs.

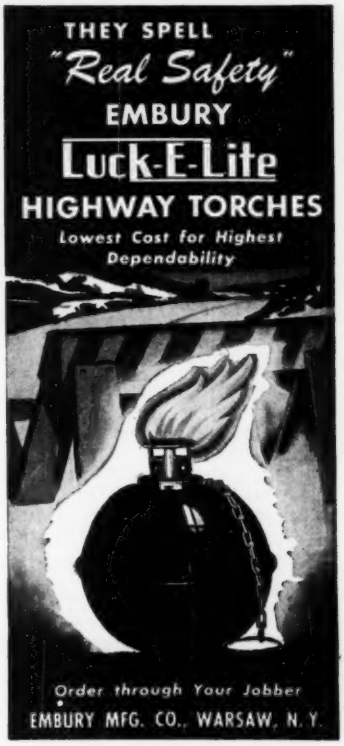
Special castings to meet your individual requirements may make use of our large stocks of non-standard patterns.

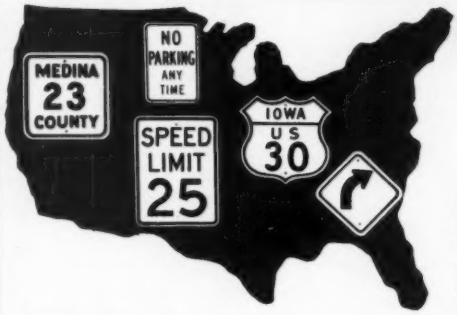
BELL & SPIGOT—FLANGE —SHORT BODY—PLAIN ENDS — MECHANICAL JOINT — SPECIALS

Sizes—2" to 84"

WARREN FOUNDRY & PIPE CORP

11 Broadway New York, N. Y.
72 Federal Street Boston, Mass.





Nationwide Highway Safety with COLUMBIA Plastic Signs

NON-CORROSIVE! COLUMBIA SIGNS are of seamless, PLASTIC construction resisting DETERIORATION, OXIDATION, POROSITY! Maximum strength is combined with the resilience of plastic. They bend under pressure, but snap back into shape.

COLOR PERMANENCE! Maximum color permanency is guaranteed by molding the color INTEGRALLY throughout the thicknesses of these signs.

VANDAL RESISTING! Guaranteecd resistance to the most severe mechanical abuse. Hammering, pounding, bending, stone-throwing, shotgun or rifle bullets CANNOT CAUSE DEFACEMENT.

GREATER SAVINGS! PRACTICALLY INDESTRUCTIBLE, these signs assure greater savings by cutting down maintenance costs.

LEGIBILITY! All signs and markers conform to newest sign standardizations. Clearly readable legends and symbols assure widest angle visibility.

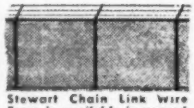
BRILLIANCE! These signs, reflectorized, shine with all-angle brilliance in any weather, and at night without headlight glare.

Write for
COLUMBIA BOOKLET
It will give you a wealth of up-to-date Traffic Marker information.

GUARANTEE

The plastic base material in COLUMBIA SIGNS is guaranteed against rust or corrosion for the life of the installation.

COLUMBIA SIGN & SIGNAL CORP.
10030 LORAIN AVE. **CLEVELAND, OHIO**



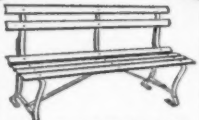
Stewart Chain Link Wire Fence is available in several heights, weights and styles to meet the degree of protection desired.

● **Stewart Chain Link Wire and Plain or Ornamental Iron Fences and Entrance Gates** are made in a sufficiently wide range to adequately cover the fencing requirements of all classes of public property.

DON'T OVERLOOK STEWART
If your plans call for Iron or Wire fencing

Stewart Plain or Ornamental Iron Fence is made in a wide

variety of designs for all classes of public property.



Stewart All Steel Settee—Durable, attractive—in 4', 5' and 6' lengths.

In addition to fence, Stewart produces many other iron, wire and bronze products for the protection and beautification of public property. Catalog sent on request: when writing, mention products in which you are interested.

Stewart IRON and WIRE FENCES

THE STEWART IRON WORKS CO., INC.
1621 Stewart Block
CINCINNATI 1, O.
Experts in Metal Fabrications since 1886

UNcommon

On the job every day for years without giving trouble.

Spring that is springy following hundreds of daily openings and closings over a period of years.

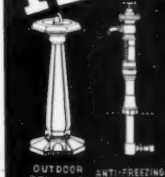
Materials of bronze and brass that almost defy time and wear.

MURDOCK Hydrants are UNcommon.

You are sure of YEARS of SERVICE — satisfactory service — from every Murdock fixture whether fountain, hydrant or street washer.

The Murdock Mfg. & Sup. Co.
426-430 Plum St., Cincinnati 2, Ohio

MURDOCK



OUTDOOR DRINKING FOUNTAINS
HYDRANTS
STREET WASHERS

New Power Hole Digger From Choremaster Div.

The new Choremaster power hole-digger is designed to eliminate hand post-hole digging without the size or cost of present tractor or truck attachments. Self-contained, self-powered, and weighing less than 100 pounds, this unit produced by the Choremaster Div. of The Lodge and Shipley Co., 8th and Evans St., Cincinnati 4, Ohio, may be had for $133.65 f.o.b. factory.

The digger's 1½- to 2-hp engine powers a heavy-duty 9-inch alloy steel auger. A centrifugal clutch provides finger-tip control. The compact design permits its use on steep grades and over soft ground. Mounting space is provided for a compressor or generator so that the machine can be used wherever a portable or stationary power supply is needed.

New Mixer from Chain Belt

The Chain Belt Co., 1600 West Bruce St., Milwaukee 4, Wis., has completely

redesigned its 3½ S Tilter Type mixer to produce the Rex 3½ S Skipper mixer which gives 50% greater production.

On the new machine the Rex stationary charging gate allows loading the hopper while another batch is in the drum. Non-clogging, it is mounted above the center line of the drum, free from the spatter of mixing concrete. The Skip lever acts as a skip shaker arm to get the batch into the drum in record time, and the concrete cannot build up in the skip throat.

What other ⅜ or ½ yard truck shovel has *all* these features?

. . . *cast steel turntable* with deck and side-frames cast in one piece, insuring constant true alignment of shafts and bearings, longer trouble-free service.

. . . *all shafts splined and ball bearing mounted* plus machine-cut gears and sprockets for smoother, longer-lived operation.

. . . *interchangeable turntable shafts, bearings and clutches.*

. . . *tapered hook rollers, ball-bearing mounted,* easily adjustable for wear.

. . . *air-ram operated clutches* that are fingertip controlled—that are fast, positive, dependable.

From wheels to boom-point you get *more* fast-production, cost-cutting features in a MICHIGAN. That's why *I* selected MICHIGAN . . . and it's why I say *you'll get the most for your money in a MICHIGAN!"*

Write for your copy of Bulletin 100, "On the Job with MICHIGAN," showing MICHIGAN Truck Shovels on jobs like yours.

DID YOU KNOW
you can buy
a brand new
MICHIGAN
TRUCK CRANE
complete with chassis
for as little as $10,250
F.O.B. factory?

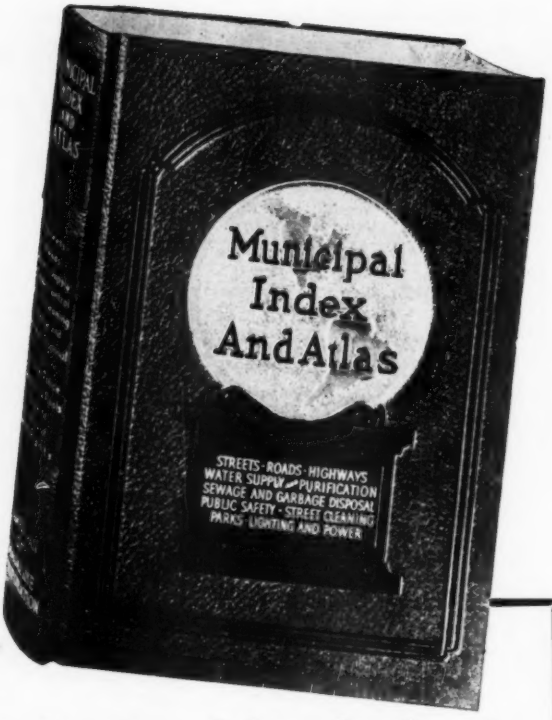
MICHIGAN

MICHIGAN POWER SHOVEL COMPANY
373 Second Street, Benton Harbor, Michigan, U.S.A.

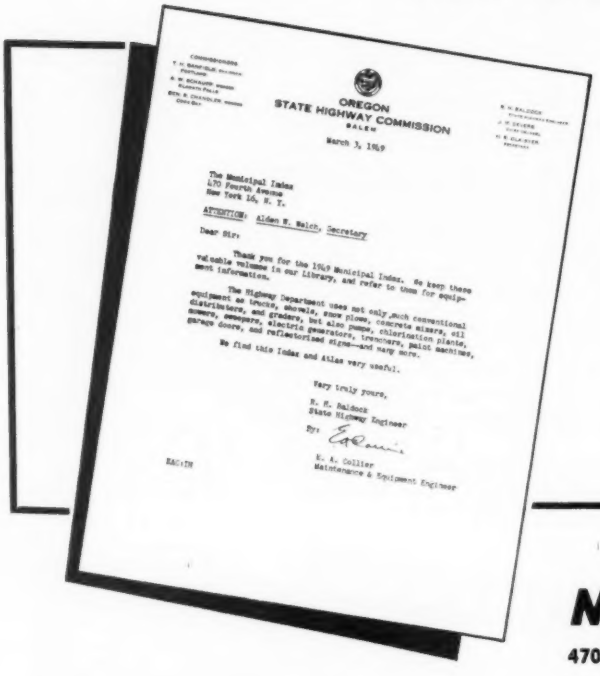
Whether it's snow plows or reflectorized signs You'll find the best qualified manufacturers in the

Municipal Index

Used by thousands of cities and counties—and by State Highway Departments


Municipal Index And Atlas
STREETS · ROADS · HIGHWAYS
WATER SUPPLY · PURIFICATION
SEWAGE AND GARBAGE DISPOSAL
PUBLIC SAFETY · STREET CLEANING
PARKS · LIGHTING AND POWER

Here is one of hundreds of enthusiastic letters which we have received since the distribution of the 1949 edition.



OREGON
STATE HIGHWAY COMMISSION
SALEM

March 3, 1949

The Municipal Index
470 Fourth Avenue
New York 16, N. Y.

ATTENTION: Alden H. Welch, Secretary

Dear Sir:

Thank you for the 1949 Municipal Index. We keep these valuable volumes in our library, and refer to them for equipment information.

The Highway Department uses not only such conventional equipment as trucks, shovels, snow plows, concrete mixers, oil distributors, and graders, but also pumps, chlorination plants, sumps, sweepers, electric generators, tramways, paint machines, garage doors, and reflectorized signs—and many more.

We find this Index and Atlas very useful.

Very truly yours,

R. H. Baldock
State Highway Engineer

By E. A. Collier
Maintenance & Equipment Engineer

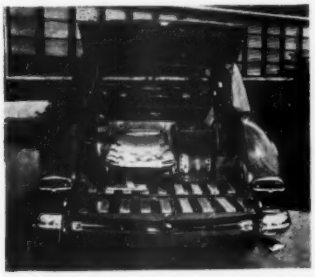
EAC:TH

The Municipal Index

470 Fourth Avenue **New York 16, N. Y.**

Fire, Police Chiefs Get New Kaiser Car

Here are the first photos of the first rescue car every built especially for fire and police departments on a mass production basis. It is the new Kaiser Vagabond and the model shown is a Fire Chief's car. Painted a "fire department



red" and equipped with spot lights, a siren, and red rear blinker light, it is a safety vehicle which will attend every fire with the Chief. With the rear seat folded, the unit becomes an emergency ambulance, with a full-size stretcher, first-aid equipment, resuscitator, and other paraphernalia.

All-Wheel-Drive Tractor

The all-wheel-drive tractor made by the Detroit Tractor Corp., 3400 Scotten Ave., Detroit 10, Mich., may be used for fall grading or winter snow and ice clearance.

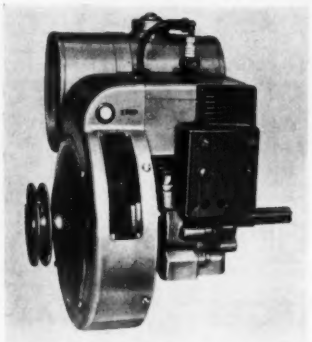
Blades, mounted on an adjustable frame and manually or hydraulically controlled and counter balanced, are suitable for light bulldozing, leveling, and backfilling. The snow-blade is mounted on the same frame.

Standard equipment provides for equalized traction and hydraulic steering and braking.

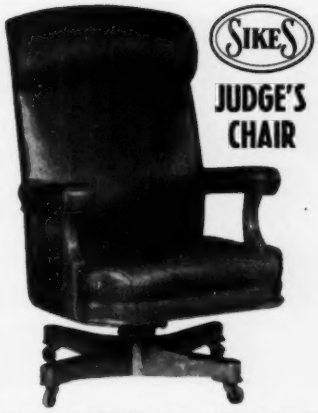
19-Pound Engine Develops 4 HP

A new air-cooled, 4-hp gasoline engine weighing 19 pounds is announced by Homelite Corp., Port Chester, N. Y. It uses die-cast aluminum alloys for all major castings. Two-cycle design permits a minimum number of moving parts, simplified maintenance, and repair work. There are no exhaust valves, and only one rotary intake valve which is self-seating and requires no adjustment. The engine speed is controlled by a built-in governor which is part of the rotary intake valve.

Designed for any industrial application where light weight and compact



size are important, this engine can be used either horizontally or vertically. It develops 4 hp at 4,000 rpm and 3 hp at 3,000 rpm. Overall dimensions are 9½ inches long, 11½ inches wide, and 13 inches high. Homelite also makes portable generators, pumps, blowers, and electric saws.



CITY OFFICIALS WELCOME THE ADDED COMFORT

of this fine Sikes Chair No. 239 . . . one of many models that combine new-found working comfort with appropriate restrained styling. It is equally well-liked by Department Heads, Mayors, City Managers, Commissioners, Councilmen, etc. Luxuriously upholstered in top-grain leather, with padded head rest and arms, foam rubber seat over resilient springs. Ask for our free literature. Please state uses for which furniture is desired.

THE SIKES COMPANY, Inc.
42 Churchill St., Buffalo 7, N. Y.

—Certainly—

Sewage Treatment costs can be reduced!

CLOROBEN
proves it

•

Springfield, Missouri
reports its results

Reprints available soon.

THE CLOROBEN CORPORATION
15 EXCHANGE PLACE, JERSEY CITY 2, N. J.

The Pioneers of Up Sewer Treatment

Chief Civil Engineer
Wanted

Established West Coast Engineering firm needs qualified Graduate Civil Engineer to take charge of Civil Department.

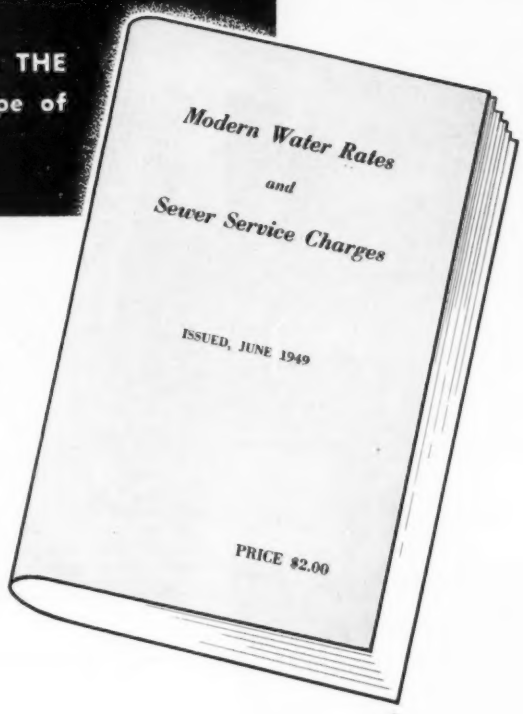
Thorough knowledge and wide experience required in Civil Engineering including grading, drainage, roads, railroads, and utility layouts for municipalities. In addition, applicant must possess ability to discuss and develop prospective work with municipal, county and state authorities.

Furnish complete record with photo. Replies confidential.

Box Number L. A. 323, c/o The American City, 470 4th Ave., New York 16, N. Y.

Water Rates

FROM SELECTED CITIES ACROSS THE COUNTRY. With data on the type of water system each supports.



Plus—

SEWER SERVICE CHARGES

now in successful use supporting well - operated sewage works

Giving examples of charges based on . . .
plumbing fixtures
water use
strength of industrial waste.

Plus—

WRITTEN DISCUSSION ON

what types of water rates are in use and how to select the one your community needs.

- How to set a minimum water rate that means something.
- What to charge out-of-city customers.
- What hydrant rental really means and how to calculate it fairly.
- How to frame a sewer service charge that works.

— 64 pages — price $2.00 —

Order Your Copy Today

Mail this Coupon for Your Copy

THE AMERICAN CITY
470 Fourth Ave., New York 16, N. Y.

Gentlemen:

Yes, please send me by return mail .... copies of your WATER RATES AND SEWER SERVICE CHARGES at $2 per copy.

☐ I am sending a check with this order.
☐ Please bill me for my copies when they are sent.

Signed .....
Title .....
Address .....
City ..... State AC-9

The American City Professional Service Directory

ACKLEY, BRADLEY & DAY
Architects—Engineers—Specialists for 25 years
Swimming Pools, Ice Rinks, Recreation Parks, New Designs, Surveys, Plans and Supervision.
Old Pools Modernized
Correspondence Invited
200 Chestnut Street — Sewickley, Pa.

ALLEN & HOSHALL
Consulting Engineers
Mechanical—Civil—Electrical
Municipal Improvements
65 McCall Place
MEMPHIS, TENNESSEE

The American Public Utilities Bureau
Organized to assist municipalities and public groups in utility valuations, rates, franchises, accounting and surveys.
John Bauer, Ph.D., Director
280 Broadway, New York City 7

E. T. ARCHER & COMPANY
Consulting Engineers
Organized—1907
Electric Power, Water Works, Sewerage, Paving, Reports, Designs, Supervision.
706 Railway Exchange Building, Kansas City 6, Mo.

ALBRIGHT & FRIEL, INC.
Consulting Engineers
Water, Sewage and Industrial Waste Problems, Airfields, Refuse Incinerators & Power Plants, Industrial Buildings, City Planning, Laboratory, Reports, Valuations
121 South Broad St. — Philadelphia 7

ALVORD, BURDICK & HOWSON
Chas. B. Burdick
Louis R. Howson — Donald H. Maxwell
Water Works — Sewage Disposal
Water Purification — Drainage
Flood Relief — Appraisals
Sewerage — Power Generation
Civic Opera Bldg. — Chicago 6, Ill.

ANDREWS & CLARK
Consulting Engineers
Design—Reports
Construction Supervision
305 East 63rd St. — New York 21

ARGRAVES & MORT
Engineers
Sewerage—Waterworks—Dams
Sewage Treatment Plants
Airports—Structures
70 College St., New Haven, Conn.

ABRAMS AERIAL SURVEY CORPORATION, Lansing, Michigan
One-quarter Century of Experience
Planimetric cand topographic maps, controlled mosaics,
Stereograms, relief models, large-scale atlas sheets.
The complete job—photography—compilation—to finished survey.
Oblique photographs for pictorial views—for project presentation.
AERIAL SURVEYS — OBLIQUE PHOTOGRAPHY

ASSOCIATED CONSULTANTS
Consulting in Street Traffic and Transportation
GEORGE W. BARTON
Engineering Director
1704 Judson Ave., Evanston, Ill.

ARMSTRONG ASSOCIATES
City Planning — Economic Surveys
Valuation and Reassessment Consultants
12 EAST 41st STREET — MUrray Hill 9-2690 — NEW YORK 17, N. Y.

JOHN J. BAFFA
Consulting Engineers
Drainage, Sewerage, Sewage and Wastes Treatment
Water Supply and Water Purification
Investigations — Sanitary Planning
Reports — Plans and Specifications
75 West St. — New York 6, N. Y.

B & B ENGINEERING CORPORATION
Fire Alarm and Traffic Signal — Engineers and Consultants
309 Southern Bldg. — Wilmington, N. C.
Branches: New York, N. Y. — Baton Rouge, La. — St. Louis, Mo.

SCOTT BAGBY
Modern Comprehensive City and Area Planning and Development
"Plans Which Can Be Carried Out"
22 Pleasant Avenue, Montclair, N. J.

WESLEY BINTZ
B. C. E. — M. S. in E.
Consulting Engineer, Civil
Swimming Pool Designs — Since 1923
Park Layouts, Memorial and Community Buildings Exclusively
301½ S. WASHINGTON AVE. — LANSING 25, MICH.

MICHAEL BAKER, JR., INC.
The Baker Engineers
Civil Engineers — Planners — Surveyors — Municipal Engineers — Airport Design — Sewage Disposal Systems — Water Works Design and Operation — Consulting Services—Surveys and Maps
Branch Office—Jackson, Miss.
Home Office—Rochester, Pa.

BLACK & VEATCH
Consulting Engineers
Sewerage, Sewage Disposal, Water Supply, Water Purification, Electric Lighting, Power Plants, Valuations, Special Investigations, and Reports.
4706 Broadway — Kansas City 2, Missouri

Barber, Keels & Associates, Inc.
Engineers and Surveyors
B. P. Barber — E. E. Edwards, Jr.
Joseph Keels — L. A. Emerson
Civil, Hydraulic & Municipal Engineers
Columbia — South Carolina

BUCK, SEIFERT AND JOST
Consulting Engineers
Water Supply, Sewage Disposal, Hydraulic Developments, Valuations and Reports.
Chemical and Biological Laboratories.
112 East 19th Street — New York 3, N. Y.

BARKER & WHEELER
36 State Street — Albany, N. Y.
11 Park Place — New York City 7
Sewage Disposal — Public Utility and
Water Supply — Industrial Valuations and Rates
Sewerage — Power

BURNS & McDONNELL ENGINEERING COMPANY
Consulting Engineers — 50th Year
Waterworks, Light and Power, Sewerage, Reports, Designs, Appraisals. Rate Investigations.
P. O. Box 7088 Country Club Station — Office: 95th and Troost Ave.
Kansas City 2, Missouri

E. D. BARSTOW
Sanitary Engineer
Water Supply—Water Treatment
Sewerage—Sewage Treatment
Reports—Plans—Construction
31 N. Summit St., Akron 8, Ohio

THE HARWOOD BEEBE CO.
Municipal & Civil Engineers
Water Supply and Purification, Sewerage and Sewage Treatment, Streets, Light & Power, Airports
Montgomery Building
Spartanburg, S. C.

Capitol Engineering Corp.
Engineers—Constructors—Management
Water Works, Sewage Disposal, Airports, Dams and Bridges, Roads and Streets, Planning, Design and Surveys.
Dillsburg Pennsylvania

MAURICE H. CONNELL AND ASSOCIATES, INC.
Consulting Engineers
Civil — Mechanical — Electrical
Maurice H. Connell Harvey F. Pierce
Edmund Friedman Charles B. Smoot
Designs, plans, specifications, supervision of construction, consultations, reports, investigations.
Langford B dg. Miami 32, Florida

CHAS F. DINGMAN
Engineer
Consultant on Construction Cost. Valuation of Physical Assets.
Palmer Mass.

HOWARD K. BELL
Consulting Engineers
C. S. Bell C. G. Gaither J. K. Latham
Water Works Sewage Disposal
Water Purification Sewerage
Streets Refuse Disposal
Industrial Wastes
553 S. Limestone St. Lexington, Ky.

The Chester Engineers
Water Supply and Purification
Sewerage and Sewage Treatment
Power Development and Applications
Investigations and Reports
Valuations and Rates
210 E. Park Way at Sandusky St.
Pittsburgh 12, Pennsylvania

COUCH & KULIN, INC.
Consulting Engineers
Water Supply & Treatment
Sewerage, Garbage & Industrial Waste Treatment
Swimming Pools
Industrial and Municipal Building Design
Reinforced Concrete Structures
812 E. Washington St., Indianapolis 4, Ind.

EDIGER ENGINEERING CO.
Street Improvements, Highways
Waterworks-Sewerage
Airports-Surveys
252 Laura, Wichita, Kansas

CLINTON L. BOGERT ASSOCIATES
Consulting Engineers
Clinton L. Bogert Ivan L. Bogert
Water and Sewage Works
Refuse Disposal Industrial Wastes
Drainage Flood Control
624 Madison Ave., New York 22, N. Y.

CHURCHILL-FULMER ASSOCIATES
CITY PLANNING
19 W. 44th St., New York 18, N. Y.

DICKINSON & WHITE
ENGINEERS—SINCE 1909
Design and Supervision of Municipal Improvements — Water Supply & Purification — Sewerage and Sewage Disposal — Reinforced Concrete and Structures — Reports, Valuation and Appraisals
115 N. Spring St., Little Rock, Ark.

Fay, Spofford & Thorndike
Engineers
Airports—Bridges—Buildings
Port Developments—Drainage
Water Supply—Sewerage
Fire Prevention
BOSTON NEW YORK

LOUIS P. BOOZ
Consulting Engineers
Incineration
Sanitation
Water Treatment
Industrial Wastes
51 E. 42 St., New York 18, N.Y.

BUSINESS RESEARCH CORPORATION
Consulting Management Engineers
105 SOUTH LA SALLE ST., CHICAGO 3, ILL.
Personnel Classification
Job Evaluation
Salary Administration
Organization Planning
Budgetary Control
Office Systems

Bowe, Albertson & Associates
Engineers
Sewerage—Sewage Treatment
Water Supply—Purification
Refuse Disposal—Analyses
Valuations—Reports—Designs
110 William St. New York 7, N. Y.
2062 Kings Highway Fairfield, Conn.

THE J. M. CLEMINSHAW COMPANY
"27th Year"
APPRAISALS—REVALUATIONS
Specializing in the revaluation of Real Estate and Personal Property for local tax equalization purposes. Illustrated brochure on request.
Union Commerce Bldg. CLEVELAND
Public Appraisal Service is a Public Trust
McGraw Hill Bldg. NEW YORK

BURGESS & NIPLE
Philip Burgess Chester A. Niple
Ben K. Bare Clayton C. Bull
H. G. Bill Raymond Fuller
B. F. Hatch Tahlman Krumm
John D. Nipie R. E. Peters
Water Works, Purification, Sewerage, Sewage Treatment, Valuations.
584 E. Broad St., Columbus 15, Ohio

L. COFF, CONSULTING ENGINEER
Specializing Exclusively in Prestressed Concrete
A rational method of construction for shallow, heavily loaded and wide-span structures
198 BROADWAY NEW YORK, 7, N. Y.
Telephone: COrtland 7-2753

The Consulting Engineers' section of
THE MUNICIPAL INDEX
for 1949 will be found on pages 834 to 852

COLE • LAYER • TRUMBLE COMPANY
REVALUATIONS CLT APPRAISALS
11 W. Monument Ave • Dayton 2, Ohio
Municipal and County Tax Revaluations
Descriptive Material upon Request

FRANK A. BUSSE
Consulting Engineers
Airports, City Planning, Sewerage and Sewage Treatment, Grade Crossing Elimination, Harbor Works, River Barge Terminals.
649 Shrine Bldg. Memphis 3, Tenn.

CONSOER, TOWNSEND & ASSOCIATES
Water Supply—Sewerage—Flood Control & Drainage—Bridges — Express Highways — Paving — Power Plants, Appraisals — Reports — Traffic Studies — Airports.
351 EAST OHIO STREET CHICAGO 11, ILL.

EDWARD A. CONNELL
Consultant
Municipal Spraying
Shade Tree-Mosquito Control
Box 930, Stamford, Conn.

DAMON & FOSTER
Consulting Civil Engineers and Surveyors
Water Supply, Sewerage, Sewage Disposal, Surveys, Land Subdivision, City and Town Planning, Reports, Design, Supervision.
Sharon Hill Pennsylvania

CAMP, DRESSER & McKEE
Consulting Engineers
Water Works, Water Treatment, Sewerage, Sewage Treatment, Municipal, Industrial Wastes, Investigations, Reports, Design Supervision, Research, Development, Flood Control.
6 Beacon Street Boston 8, Mass.

DAY & ZIMMERMANN, INC.
Consulting Engineers
Design, Construction, Management and Reports
Industrials, Public Utilities and Institutions
NEW YORK 165 Broadway
PHILADELPHIA 620 Packard Bldg.
CHICAGO 231 S. La Salle St.

The American City Professional Service Directory

Finkbeiner, Pettis & Strout
Carleton S. Finkbeiner C. E. Pettis
Harold K. Strout
Consulting Engineers
Reports Designs Supervision
Water Supply, Water Treatment, Sewerage, Sewage Treatment, Waste Treatment, Valuations & Appraisals.
518 Jefferson Avenue Toledo 4, Ohio

EMERY C. FURRER
City Planning, Municipal and Sanitary Engineering, Building Codes and Zoning Ordinances, Airports, Drainage, Flood Control, Industrial Plants, Design of Fixed and Movable Bridges.
82 W. Washington St. Chicago 2, Ill.

IVAN M. GLACE
Consulting Sanitary Engineer
Water Supply and Purification
Sewerage, Sewage and Industrial Wastes Treatment
Design, Construction and Supervision of Operation
Laboratory Service
Front at Boas St. Harrisburg, Pa.

WILLIAM A. GOFF, Inc.
General Engineering and Consulting Services
Water, Sewerage, Refuse Incineration
Industrial Buildings, Power Plants
Airport Town Planning
Plans, Supervision, Valuations, Reports
Broad St. Sta. Bldg., Phila. 3, Pa.

CHANGED YOUR ADDRESS?
If so, please notify the publishers as we are anxious to have your card correct in this Directory. Thank you.

GILBERT ASSOCIATES, INC.
Engineers and Consultants
Power Plant Engineering
Water Supply and Purification
Sewage and Industrial Waste Treatment
Chemical Laboratory Service
New York Washington
READING, PA.
Houston Philadelphia

"WHO'S WHO"
City Departments can depend upon this Directory as a thoroughly reliable "Who's Who" among Consulting Engineers Specializing in Municipal Work.

Goforth Engineering Co.
Consulting Engineers
Structures, Water Supply, Sewerage, Streets, Roads, Pavements, Surveys, Plans, Supervision, Investigations, Reports.
Erwin, Tenn.
Johnson City, Tenn.

DE LEUW, CATHER & COMPANY
Consulting Engineers
Public Transit, Traffic and Parking Problems
Railroads Subways Grade Separations Tunnels
Major Thoroughfares Power Plants Expressways Municipal Works
150 North Wacker Drive, Chicago 6, Ill. 79 McAllister Street, San Francisco 2, Calif.

GREELEY & HANSEN
Engineers
Water Supply, Water Purification
Sewerage, Sewage Treatment
Flood Control, Drainage, Refuse Disposal
220 S. State Street, Chicago 4

GREGORY M. DEXTER, C.E., M.E.
Consulting Engineer
Water supply, waste disposal, traffic studies, valuations and reports
EMPIRE STATE BUILDING
350 FIFTH AVENUE LOngacre 4-3881 NEW YORK 1, N. Y.

Frank L. Greenfield Co., Inc.
Inspections — Tests — Reports
Buildings, Bridges, Highways, Structural Steel, Concrete, Welding, Automotive and Heavy Machinery, Road Building and Farm Equipment, Power Plants, Diesels, Generators.
Exec. Offices: Woolworth Bldg., N. Y. 7
Ph: BEekman 3-9225 Cable: 'Proxident'

ELECTRICAL TESTING LABORATORIES, INC.
Electrical and General Testing—Inspections—Research—Certification
2 EAST END AVENUE AT 79th STREET, NEW YORK 21, N. Y.
BUtterfield 8-2600

Hahn, Campbell & Associates
Planning Consultants
Community Planning and Industrial Surveys
1319 Howard Avenue
Burlingame, California

LFA . . . *Airport Financial Counsellors*
SERVING PUBLIC AGENCIES NATIONALLY
Airport Investment Appraisals · Income Development Programs
Business and Efficiency Systems · Terminal Financing Studies
Leigh Fisher & Associates—7337 CHURCHILL · DETROIT 6, MICH.

THE HALLER TESTING LABORATORIES, INC.
Consulting-Testing-Inspection
201 Second Ave., New York, N. Y.
104 Cummington St., Boston, Mass.
336 Leland Ave., Plainfield, N. J.

Established 1913
WALTER H. FLOOD & CO.
CHEMICAL ENGINEERS
INSPECTION AND TESTING OF MATERIALS AND STRUCTURES
STREETS — ROADS — AIRPORTS
BUILDING AND GENERAL ENGINEERING CONSTRUCTION
Resident Inspection—Chemical and Physical Tests—Soil Boring and Investigation—Concrete Core Cutting
SPECIFICATIONS — REPORTS — RESEARCH
6102 SO. BLACKSTONE AVENUE CHICAGO 37, ILL.

HARDESTY & HANOVER
Consulting Engineers
Successors to
Waddell & Hardesty
Fixed and Movable Bridges, Hanover Skew Bascule Bridge, Grade Crossing Eliminations. Other Structures.
101 Park Avenue New York 17

Ford, Bacon & Davis
Construction Reports Engineers *Valuations Airports*
New York • Philadelphia • Chicago • Los Angeles

HARRIS-DECHANT, ASSOC.
Frederic R. Harris Frederick H. Dechant
Consulting Engineers
Water Works, Sewage and Industrial Waste Treatment Works, Power Developments, Harbor Works, Industrial Plant, Foundations, Tunnels, Dams and Reservoirs Laboratory Service.
27 William Street, New York 5
123 South Broad St., Phila. 9

GANNETT FLEMING CORDDRY AND CARPENTER, INC.
Harrisburg, Pa. New York, N. Y.
ENGINEERS
Water Works, Sewage, Industrial Wastes and Garbage Disposal—Roads, Airports, Bridges and Flood Control, Town Planning, Appraisals, Investigations and Reports.

JOHN J. HARTE CO.
Engineers—Architects
Water—Sewer—Gas—Paving
Airports—Electric Distribution
Drainage—Structural—Site Planning
Forsyth Bldg. Atlanta, Ga.

CHARLES A. HASKINS
Consulting Engineers
Sewerage, Water Supply, Hydraulics, Power, Paving, Valuations, Investigations, Reports.
1009 Baltimore Ave.
Kansas City 6, Missouri

Jenkins, Merchant & Nankivil
Consulting Engineers
Water Systems, Municipal Improvements, Power Development, Sewerage, Flood Control, Industrial Plants, Airports, Recreational Facilities, Traffic Surveys, Investigations and Reports.
805 East Miller St., Springfield, Ill.

KAISER ENGINEERS, Inc.
General Engineering Services
Public Works
1924 Broadway — 617 So. Olive St.
Oakland 12, Cal. — Los Angeles 14, Cal.

KINCAID & HUTCHINSON
Planners and Architects
Consultation in city and regional planning; Zoning and building regulations; Subdivision design; Site planning for apartments, shopping centers and redevelopment areas; and general architectural practice.
105 W. Madison St. — Chicago 2, Ill.

HAVENS AND EMERSON
W. L. Havens — C. A. Emerson
A. A. Burger — F. C. Tollen — F. W. Jones
Consulting Engineers
Water, Sewerage, Garbage, Industrial Wastes, Valuations—Laboratories
Leader Bldg. — Woolworth Bldg.
Cleveland 14 — New York 7

The Jennings-Lawrence Co.
Civil & Municipal Engineers
A. P. Harness, Jr. — C. C. Walker
F. L. Swickard — B. I. Sheridan
Water Supply—Treatment—Distribution
Sewerage—Sewage Treatment—Paving
Drainage—Dams — Surveys—Mapping
Reports — Plans—Supervision
12 N. Third St. — Columbus 15, Ohio

KEIS & HOLROYD
Consulting Engineers
Formerly Solomon & Keis
Since 1906
Water Supply and Purification, Sewerage and Sewage Treatment, Garbage and Refuse Disposal and Incineration, Industrial Buildings
Troy, N. Y. — Ft. Lauderdale, Fla.

A. C. KIRKWOOD AND ASSOCIATES
Engineers — Consultants
Wirthman Bldg.
Kansas City 3, Mo.

CHARLES HAYDOCK
Consulting Engineers
Water Works and Sanitation, Industrial Wastes
Design, Construction, Operation and Management Reports and Valuations
Com'l Trust Bldg., Philadelphia 2, Pa.

JONES, HENRY & SCHOONMAKER
(Formerly Jones & Henry)
Consulting Sanitary Engineers
Water Works
Sewerage & Treatment
Waste Disposal
Security Bldg. — Toledo 4, Ohio.

J. S. KENNOY
Consulting Engineer
Construction and Maintenance of Airfields, Dams and Power Plants, Streets and all Municipal Utilities, Garbage and Refuse Collection and Disposal.
607 So. Broadway, Lexington 20, Ky.

Knappen, Tippetts, Abbett Engineering Co.
Ports, Harbors, Flood Control, Irrigation, Power, Dams, Bridges, Tunnels, Highways, Subways, Airports, Traffic, Foundations, Water Supply, Sewerage, Reports, Design, Supervision, Consultation.
62 West 47th St., New York City

HENNINGSON ENGINEERING COMPANY
Consulting Engineers since 1917 for more than 500 cities and towns.
Water Works, Light & Power, Sewerage, Paving, Airports, Reports, Appraisals, Drainage.
Standard Oil Bldg. — Omaha 2, Nebr.

GRIFFENHAGEN & ASSOCIATES
Consultants in Public Administration and Finance
Counsel and technical assistance on organization, procedure, personnel, physical facilities, finance, policies, and plans.
Washington — Milwaukee — Boston — Cleveland — Chicago — New York

HILL and HILL
Engineers
Sewage and Waste Disposal, Water Supply and Filtration, Dams, Reservoirs, Tunnels, Airport and Typographic Surveys
Home Office: 24 E. Main St., North East, Pa.

ROBERT BRUCE HARRIS
Landscape & Golf Course Architect
GOLF COURSES • PARKS • SCHOOL GROUNDS • INSTITUTIONS • SITE PLANNING
664 N. MICHIGAN AVENUE · CHICAGO 11 · ILLINOIS

Hitchcock & Estabrook, Inc.
Lester D. Lee, Associate
Professional Engineers and Architects
Consultants to Municipalities Since 1920
521 Sexton Bldg., Minneapolis 15, Minn.

HOLMES & NARVER
ENGINEERS
Telephone: TUcker 4237
824 SO. FIGUEROA — LOS ANGELES 14

HORNER & SHIFRIN
Consulting Engineer
W. W. Horner — S. W. Jens
H. Shifrin — E. E. Blose
Airports—Hydraulic Engineering
Sewerage—Sewage Treatment
Water Supply — Municipal Engineering—Reports.
Shell Building, St. Louis 3, Mo.

THE GEORGE B. HORAN COMPANY
Appraisal Engineers
Municipal Tax Revaluations and Aerial Surveys
New Haven 10, Conn. — "Covering New England"

ROBERT W. HUNT CO.
Engineers
Inspection—Tests—Consultation
Pipe and Appurtenances; Paving and Engineering Materials; Green and Treated Lumber.
175 W. Jackson Blvd., Chicago 4 and all large industrial centers.

HOMER HOYT ASSOCIATES
Housing Surveys — Retail Store Location Surveys — Real Estate Assessments
Specializing in determining 1949 population and income distribution and in forecasting future population in neighborhoods, cities, and regions for plan commissions, housing agencies and retail stores. Analyses of trends of land use for re-zoning. Valuation of real estate for assessment purposes.
12 WEST DRIVE — Telephone Larchmont 2-1180 — LARCHMONT, N. Y.

H. R. HUNTER
Consulting Engineers
Water supply and treatment, Sewerage and disposal, Streets, Drainage, Power Plants, Gas Systems, Airports, Appraisals and Reports.
313 East Third Street, Wichita, Kans.

CHAUNCEY A. HYATT
Consultant Specialist on Swimming Pools Exclusively
Design — Operation — Maintenance — Renovation existing pools.
Plans checked — Reports — Surveys.
"35 Years of Experience Covering Thousands of Pools" — 5555 Sheridan Rd., Chicago 40, Ill.

Industrial Welfare Associates
Community Service Div.
Consulting Safety Engineers
Julius Morris, Pres.
Public Safety — Industrial Safety
Home Safety — School Safety
Civil Service Safety Program
109 Broad St., New York 4, N. Y

J. L. JACOBS & COMPANY
Management Consultants and Engineers
Surveys — Reports — Installations
Organization — Procedure — Budgetary Control — Property Valuation and Equalization
Job Evaluation — Classification — Salary Administration
53 WEST JACKSON BLVD. — CHICAGO 4, ILL.

The American City Professional Service Directory

MORRIS KNOWLES, Inc.
Engineers
Water Supply and Purification, Sewerage and Sewage Disposal, Valuations, Laboratory, City Planning.
1312 Park Bldg.
Pittsburgh 22, Pa.

HAROLD M. LEWIS
Consulting Engineer, City Planner
Municipal & Regional Planning
Zoning, subdivisions, traffic, parking, urban redevelopment, airports, related problems.
Reports—Plans—Ordinances
15 Park Row New York 7

THE JOHN McCRADY CO.
Civil and Municipal Engineers
Charleston, S. C.

LEONARD MISCALL AND ASSOCIATES
Consultants
Municipal Problems, Planning and Zoning Studies and Reports
111 Parker Pl. Ithaca, New York

LOUIS J. KROEGER AND ASSOCIATES
Administrative Surveys—Personnel Classification—Salary Plans—Civil Service Testing
1605 Humboldt Bank Bldg.
San Francisco
731 S. Figueroa St., Los Angeles

WM. S. LOZIER CO.
Consulting Engineers
Sewerage, Sewage Disposal, Water Supply, Water Purification.
Refuse Disposal
10 Gibbs St., Rochester 4, N. Y.

JOHN B. McGAUGHY ASSOCIATES
Consulting Engineers
Water supply, sewage disposal, airports, streets, improvements, municipal planning, buildings, recreational facilities, reports and appraisals.
700 Front Street Norfolk 7, Va.

MOORE & OWEN
Engineers
Water, Sewage, Incineration
Refuse Disposal, Airfields
Complete Water & Sewage Laboratories, Industrial Wastes
1456 N. Delaware St.
Indianapolis 2, Ind.

J. LAMPRECHT
Consulting Engineer
Water Supply, Sewerage, Roads and Streets, Building, Bridges, Power Development, Surveys, General Engineering.
Manlius Road, Fayetteville, N. Y.

CHANGED YOUR ADDRESS?
If so, please notify us as we are anxious to have your card in this Directory, correct.
Advertising Dept.
THE AMERICAN CITY
470 Fourth Ave.
New York 16, N. Y.

McHUGH and McCROSKY
Consultants
Community and Regional Development Problems, Plans and Programs, Zoning, Subdivision Regulations, Traffic, Capital Budgets, Planning Administration, Urban Redevelopment, Investigations and Reports.
23 East 26th St., New York 10, N. Y.

Arthur L. Mullergren
Consulting Engineers
Specialist in Electric Light, Power and Water Pumping
202 Fairfax Building
Kansas City, Mo.

ENGINEERING OFFICE OF CLYDE C. KENNEDY
COMPLETE MUNICIPAL ENGINEERING SERVICE
For More Than a Quarter Century
Investigation, Reports, Design, Supervision of Construction and Operation.
WATER SUPPLY, WATER CONDITIONING, SEWERAGE, SEWAGE AND WASTE TREATMENT
604 Mission Street CHEMICAL AND BIOLOGICAL LABORATORY San Francisco 5

PALMER & BAKER, INC.
Consulting Engineers for:
Problems of Transportation, Subaqueous Vehicular Tunnels, Rock Tunnels, Utility Tunnels, Bridges, Grade Separations, Highways, Airports, Traffic Studies, Parking Problems, Waterfront and Harbor Structures.
Mobile, Alabama

H. W. LOCHNER AND COMPANY
ENGINEERS AND ARCHITECTS
150 NORTH WACKER DRIVE, CHICAGO, ILLINOIS
Traffic, Transportation and Parking Reports
Street and Highway Design
Municipal Engineering
Industrial Buildings
Water Supply and Sewerage Systems
Bridges and Structures
Schools and Hospitals

PATCHEN & ZIMMERMAN ENGINEERS
Municipal Planning, Water and Sewage Treatment, Structures, Investigations and Reports.
Daniel Field Airport, Augusta, Ga.

LOCKWOOD, KESSLER & BARTLETT, INC.
Engineers—Surveyors
General Engineering Services • Aerial and Ground Surveys • Photogrammetric Mapping
Domestic and Foreign
32 COURT ST. BROOKLYN 2, N. Y.

PATZIG TESTING LABORATORIES
Inspection Service
Chemical and Physical Testing of Paving and Building Materials, Metals, Fuels, Oils, Water, etc.
2215 Ingersoll Av., Des Moines, Ia.

McFadzean, Everly and Associates
SITE DEVELOPMENT ENGINEERS
Consultaton
Survey-Reports
Long-range Programs
Specialists in Parks, Recreation Areas and School Sites.
Planning and Design
Construction Drawings
Supervision
WINNETKA • ILLINOIS

BOYD E. PHELPS, INC.
Architects and Engineers
Water Supply and Purification
Sewerage and Sewage Treatment
Power Plants, Buildings, Investigations, Reports, Appraisals, Rate Studies
232 Franklin St., Michigan City, Ind.

METCALF & EDDY
Engineers
Water, Sewage, Drainage, Refuse and Industrial Wastes Problems
Air Fields, Laboratory, Valuations
Statler Building, Boston, Mass.

Malcolm Pirnie Engineers
Civil & Sanitary Engineers
Malcolm Pirnie Ernest W. Whitlock
Richard Hazen G. G. Werner, Jr.
Investigations, Reports, Plans, Supervision of Construction and Operations
Appraisals and Rates
25 West 43rd St. New York 18, N. Y.

JOHN M. MUDDEMAN & ASSOCIATES
Planning Consultants
STONY BROOK, LONG ISLAND, N. Y.
Comprehensive Municipal Planning Programs—Subdivisions—Zoning—Traffic—Master Plans—Airports—Building Codes and General Consulting Service.
Tax Maps and Revaluation Surveys—Complete Reports for Capital Budgets and Municipal Finance.

YOUR CARD
could be set in this space at reasonable cost
If you are interested, write
THE AMERICAN CITY
470 Fourth Ave., New York 16,
or 1719 Daily News Building
Chicago 6, Ill.

POLK, POWELL & HENDON
Engineers—Consultants
A. C. Polk Harry H. Hendon
Hugh A. Powell
Water systems, sewers, sewage treatment plants, steam and hydro plants, dams, drainage, industrial, buildings, municipal planning reports, plans, estimates, supervision.
620 C. of C. Bldg., Birmingham 3, Ala.

SMITH and GILLESPIE
Consulting Engineers
All types of Municipal Public Works & Utilities
Complete Services
P.O. Box 1048, Jacksonville, Fla.

STANLEY ENGINEERING CO.
Consulting Engineers
Airports—Drainage—Electric Power
Flood Control—Rate Studies
Sewerage—Valuations—Water Works
Hershey Bldg. Muscatine, Iowa

D. B. STEINMAN
Consulting Engineers
Bridges
Design, Construction Strengthening, Investigations, Reports, Advisory Service
117 Liberty Street, New York 6

ALEXANDER POTTER ASSOCIATES
Consulting Engineers
Water Works, Sewerage, Industrial Wastes, Hydraulic Works, Reports, Designs, Appraisals.
90 Church Street, New York 7, N. Y.

FOSTER D. SNELL, INC.
Chemists—Engineers
Our chemical engineering, bacteriological, and medical staffs with completely equipped laboratories are prepared to render *Every Form of Chemical Service*
29 West 15th St., New York 11, N. Y.

HENRY B. STEEG & ASSOCIATES
Engineers
Sewage Treatment Water Supply
Refuse Disposal Flood Control
City Planning Traffic Studies
2331 North Meridian Street
Indianapolis 8, Ind.

A. CARL STELLING ASSOCIATES
Consulting Landscape Architects and Site Planners
for
Communities, Subdivisions, Housing Projects, Parks and Recreation Areas, Schools and Universities, etc.
127 E. 39th St. New York 16

RAYMOND H. ROGERS & ASSOCIATES
Consulting and Operating Foresters — Landscape Engineers
Watershed and Community Forest Management — Recreation and Park Design — Shade Tree Surveys and Maintenance — Timber Surveys and Valuation Appraisals.
Cooperstown New York

MUNICIPAL PUBLIC RELATIONS
HENRY DAVIS NADIG
Counsel on: Employee Training; Bond Issue Promotion; Reports and Publications; Official-Citizen Relationships
205 East 42nd Street (Room 1800) N. Y. 17, N. Y.

YOUR CARD
could be set in this space at reasonable cost
If you are interested, write
THE AMERICAN CITY
470 Fourth Ave., New York 16, or 1719 Daily News Building Chicago 6, Ill.

THE H. C. NUTTING COMPANY
Inspecting and Testing Engineers
Water Waste Survey; Trunk Main Surveys; Water Distribution Studies
Chemical and Physical Testing of Paving and Building Materials—Metals—Pipe—Oils, Etc.
4120 Airport Road Cincinnati 26, Ohio

SCOFIELD ENGINEERING CO.
Philadelphia
Consulting Engineers
Municipal Improvements
Water, Gas and Electric Plants
Valuations and Appraisals

PARSONS, BRINCKERHOFF, HALL & MACDONALD
Engineers
Airports, Bridges, Tunnels, Highways, Traffic & Transportation Reports, Subways, Foundations, Harbor Works, Valuations, Industrial Buildings, Power Developments, Dams, Sewerage, Water Supply.
51 Broadway, New York 6, N. Y.

LAWRENCE V. SHERIDAN
Landscape Architect
Consultant on City Planning
City, County and Regional Plans, Zoning Ordinances, Parks, Recreational Facilities, University Grounds, Real Estate Subdivisions, Housings, Cemeteries.
Broadmoor, Indianapolis 44, Ind.

THE PITOMETER COMPANY
Engineers
Water Waste Surveys; *Trunk Main Surveys*; *Water Distribution Studies*; *Penstock Gangings*
52 Church Street New York 7

GEORGE W. SIMONS, JR. AND ASSOCIATES
Planning Consultants and Municipal Engineers
City, County Plans—Zoning—Redevelopment and Housing—Traffic and Parking Studies — Parks — Recreation — Subdivisions—Landscaping.
402 Hildebrandt Bldg., Jacksonville 2, Florida

PITTSBURGH TESTING LABORATORY
INSPECTING ENGINEERS AND CHEMISTS
PITTSBURGH, PA.
Branch Offices in Principal Cities

ARE YOU A CITY OFFICIAL?
You will find this Directory a reliable "WHO'S WHO" of consulting engineers who specialize in municipal work.

CLYDE POTTS
Member Amer. Soc. C. E.
Consulting Sanitary Engineers
Weston Gavett Associates Stanley N. Williams
Sewerage and Sewage Disposal — Water Works and Water Supply
Valuations and Appraisals
30 CHURCH STREET NEW YORK 7, N. Y.

BENJAMIN L. SMITH & ASSOCIATES
Engineers
Investigations, Reports, Designs, Supervision, Valuations, Municipal Engineering and Public Utilities
11 No. Pearl St., Albany 7, N. Y.

ROBERT AND COMPANY ASSOCIATES
Architects and Engineers
Water Supply; Sewage Disposal; Industrial Wastes; Incinerators; Power Plants; Valuations
ATLANTA, GEORGIA

The "Who's Who" section of
THE MUNICIPAL INDEX
for 1949 will save you a lot of time.

ROBINSON STANDARD AERIAL SURVEYS, INC.
Vertical and Oblique Photography
Infrared Photography, a specialty for controlled mosaics and timber management programs. Controlled mosaics for City, Highway, Tax Planning and Industrial uses.
418 CENTRAL AVENUE NEWARK 7, NEW JERSEY

The American City Professional Service Directory

ALDEN E. STILSON & ASSOCIATES, LIMITED
Consulting Engineers
Water Sewerage Waste
Mechanical Structural
Surveys Reports Appraisals
209 South High Street
Columbus, Ohio

L. DEMING TILTON
Planning Consultant
Master Plans, Redevelopment and Housing Studies, Designs for Subdivisions and Business Center.
2056 Vallejo Street
San Francisco 23, Calif.

PAUL A. UHLMANN & ASSOCIATES
Paul A. Uhlmann H. E. Bonham
Carl E. Kuck Nye Grant
Consulting Engineers
Sewage and Industrial Waste Treatment
Water Supply and Purification
1441 N. High St. Columbus 1, O.

ARE YOU A CITY OFFICIAL?
You will find this Directory a reliable "WHO'S WHO" of consulting engineers who specialize in municipal work.

HENRY W. TAYLOR
Water Supply, Sewerage
Garbage Disposal, Incineration
Industrial Wastes Disposal
Hydraulic Developments
11 Park Place, New York 7, N. Y

TOWN PLANNING
IN ALL ITS PHASES
TECHNICAL PLANNING ASSOCIATES, Inc.
New Haven 10 Conn.

ROBERT L. VANNOTE, INC.
Insect Control Specialists
Municipal County Private
Mosquito, Fly and Rodent Control Programs, Survey, Estimates
Post Office Box 25
Morristown, New Jersey

WARD & STRAND
Clayton N. Ward John A. Strand
Water Works Power—Water
Water Purification Steam & Diesel
Sewerage Hydraulic Testing
Flood Control Hydrological
Irrigation and Drainage Investigation
1 West Main Street, Madison 3, Wis.

RUSSELL & AXON
Consulting Engineers
Water Works, Sewerage, Sewage Disposal, Power Plants, Appraisals.
406 Olive St.
St. Louis 2, Mo.
Municipal Airport
Daytona Beach, Fla.

J. STEPHEN WATKINS
J. S. WATKINS G. R. WATKINS
Consulting Engineers
Municipal and Industrial Engineering. Water Supply and Purification, Sewerage and Sewage Treatment, Lighting Plants and Distribution, Reports, Investigations and Rate Structures.
145 E. High St. Lexington 4, Ky.

SEELYE, STEVENSON & VALUE
Consulting Engineers
Successors to Elwyn E. Seelye & Co.
Airports, Highways, Dams, Concrete, Steel, Welding, Foundations, Stadia, Appraisals and Industrial Plants
101 Park Avenue
New York 17, N. Y.

EMERSON D. WERTZ & ASSOCIATES
MUNICIPAL ENGINEERS
Water works, Drainage, Refuse Disposal
Sewerage, Streets, Industrial Wastes
116½ East High Street Phone 88
BRYAN, OHIO

SOUTHWEST ENGINEERS. INC.
Consulting Engineers
Power Plants, Transmission and Distribution Systems, Gas and Water Systems, Sewage and Disposal Plants, Industrial Plants, Telephone Systems
Design, Construction, Economic Studies, Investigations, Appraisals, Reports
510 Transit Tower
San Antonio 5, Texas

WESTON & SAMPSON
Consulting Engineers
Hydraulic and Public Health Engineering—Engineering and Laboratory Investigations. Supervision of Purification Plants
14 Beacon St. Boston, Mass.

ROBERT H. STELLWAGEN
Consulting Engineer
Municipal and Industrial Waste Problems
Collection, Incineration, Salvage, Pumping, Treatment, Testing
629 Buhl Bldg.
Detroit 26, Mich.

WHITMAN & HOWARD, Inc.
Engineers — Consultants
Municipal Planning, Water Supply, Drainage, Sewerage, Industrial and Municipal Waste Treatment
89 Broad St. Boston, Mass.

TOLEDO TESTING LABORATORY
Inspection and Testing of Paving and Engineering Materials
Sub-Surface Exploration and Soil Tests
1810 North 12th Street
Toledo 2, Ohio

WHITMAN, REQUARDT and Associates
Engineers — Consultants
Civil—Sanitary—Structural
Mechanical Electrical
Reports, Plans, Supervision, Appraisals
1301 St. Paul St., Baltimore 2, Md.

UNITED STATES TESTING COMPANY, INC.
1415 PARK AVENUE HOBOKEN, NEW JERSEY
CONSULTING - INSPECTION - TESTING - RESEARCH
ENGINEERS & CHEMISTS
Branches: Boston - Chicago - Los Angeles - New York - Philadelphia - Woonsocket

WIEDEMAN & SINGLETON
Consulting Engineers
Water Works, Sewers, Sewage Disposal, Appraisals, Valuations, Reports
Candler Bldg. Atlanta, Ga.

CONSULTING ENGINEERS
not already represented in this directory can secure rates for these cards and further particulars of our service by writing to—
Advertising Department
THE AMERICAN CITY
470 FOURTH AVENUE NEW YORK 16, N. Y.

WILEY & WILSON
Consulting Engineers
Municipal Planning, Water Supply Sewerage, Sewage and Waste Treatment, Incinerators, Streets and Pavements, Airports, Light and Power Plants. Reports—Plans—Supervision.
905 Peoples Bank Bldg., Lynchburg, Va.
517 American Bldg., Richmond, Va.

The American City

The Manufacturers Listed Below

whose advertising you will find in this issue of THE AMERICAN CITY, will be glad to hear from you at any time and to cooperate with you in every way possible in maintaining the efficiency of your municipal activities and to assist you with products and services which will be helpful in developing your municipal improvements.

Abrams Aerial Survey Corp. 203
Adams Mfg. Co., J. D. 14
Aeroil Products Co. 46
Allis-Chalmers Tractor Div. 18
American Central Div. 170
American-Marsh Pumps, Inc. 46
American Tel. & Tel. Co. 4
American Woolen Co. 164
Anthracite Equipment Corp. 190
Aqua Survey & Instrument Co. 70
Architects, Landscapes 203 209
Armstrong Associates 203
Athey Products Corp. 67
Aurora Pump Co. 64
Automatic Voting Machine Corp. 178

B & B Engineering 203
B & M Siren Mfg. Co. 194
Baker Mfg. Co. 34
Baughman Mfg. Co. 62
Bintz, Wesley 203
Black & Veatch 203
Bowser, Inc. 70
Braxmar Co., Inc., C. G. 172
Buck, Seifert & Jost 203
Buffalo Meter Co. 193
Burns & McDonnell Engineering Co. 203
Burroughs Adding Machine Co. 176
Business Research Corp. 204

Calgon, Inc. 48
Cast Iron Pipe Research Assoc. 58, 59
Cataphote Corp. 189
Caterpillar Tractor Co. 63
Cement Gun Co. 187
Champion Corp. 46
Chapman Valve Mfg. Co. 49
Chicago Bridge & Iron Co. 10
Cleminshaw Co., J. M. 204
Cloroben Corp. 201
Clow & Sons, James B. 74, 126, 175
Coff, L. 204
Cole-Layer-Trumble Co. 204
Cole Mfg. Co., R. D. 64
Columbia Sign & Signal Corp. 198
Connelly, Inc. 186
Consoer, Townsend & Associates 204
Consulting Engineers 203-209
County Specialties 73
Crouse-Hinds Co. 148
Cyclone Fence Div. 30

Damon & Foster 204
Day & Zimmerman, Inc. 204
De Leuw, Cather & Co. 205
Dempster Brothers, Inc. 156
Dexter, Gregory M. 205
Dick Co., A. B. 57
Dorr Co. 61
Dresser Mfg. Div. 75
Dual Parking Meter Co. 136
Duncan Parking Meter Corp. 154

Eastman Kodak Co. 151
Eclipse Lawn Mower Co. 190
Eddy Valve Co. 175
Electrical Testing Laboratories, Inc. 205
Embury Mfg. Co. 197
Enterprise Engine & Foundry Co. 174
Etnyre & Co., E. D. 62
Expanding Sewer Machine Co. 60

Fisher & Assoc., Leigh 205
Fisher Research Laboratory, Inc. 169
Flexible Sewer-Rod Equipment Co. 179
Flink Co. 26
Flood & Co., Walter H. 205
Foote Co., Inc. 191
Ford, Bacon & Davis 205
Four Wheel Drive Auto Co. 12

Gamewell Co. 16
Gannett, Fleming, Corddry & Carpenter, Inc. 205
Gardner-Denver Co. 28
General Electric Co. 42, 43, 65, 132, 142, 146
GMC Truck & Coach Div. 184
Goldak Co. 177
Goods Roads Machinery Corp. 22
Griffenhagen & Associates 206
Gunite Concrete & Construction Co. 70
Gunite Construction Corp. 76

Hand Laboratory 64
Harley-Davidson Motor Co. 182
Harris, Robert Bruce 206
Hauck Mfg. Co. 67
Holmes & Narver 206
Holophane Co., Inc. 128
Horan Co., George B. 206
Hoyt Associates, Homer 206
Hussey Mfg. Co., Inc. 60
Hyatt, Chauncey A. 206

International City Managers' Assn. 160
International Harvester Co. 39, 180
International Meters, Inc. 158
International Salt Co., Inc. 52, 53
Iowa Valve Co. 74

Jacobs & Co., J. L. 206
Jaeger Machine Co. 66
Johnson Gear & Mfg. Co. 56
Johnson Steel & Wire Co. 177
Jones Co., John Wiley 162
Joslyn Mfg. & Supply Co. 140

Ka-Mo Tools, Inc. 194
Karpark Corp. 66
Keasbey & Mattison Co. 168
Kennedy, Clyde C. 207
Kennedy Valve Mfg. Co. 171
Kim-Hotstart Mfg. Co. 73

Laboratories, Testing 203-209
Lake Shore Markers Div. 70
Lasting Products Co. 191
Layne & Bowler, Inc. 122
Leadite Co. 76
Leaf Loader Div., American Structural Steel & Tank Co. 189
Littleford Brothers, Inc. 54
Lochner & Co., H. W. 207
Lock Joint Pipe Co. 45
Lockwood, Kessler & Bartlett, Inc. 207
Long Co., W. H. 124
Ludlow Valve Mfg. Co., Inc. 37

Mack Mfg. Corp. 35
Magee-Hale Park-O-Meter Co. 138
Marbelite Co. 54
Mathieson Chemical Corp. 32
McDonald Mfg. Co., A. Y. 181
McFadzean, Everly & Assoc. 207
McWane Cast Iron Pipe Co. 162
Metcalf Bros. & Co. 44
Metcalf & Eddy 207
Meterad Corp. 152
Metropole Hotel 186
Michigan Power Shovel Co. 199
Mi-Co Meters 29
Miro-Flex Co. 68
Modern Mfg. Co. 187
Muddeman & Assoc., John M. 207
Municipal Supply Co. 185
Murdock Mfg. & Supply Co. 198

Nadig, Henry Davis 208
National Clay Pipe Mfrs., Inc. 72
National Supply Co. 71
Neptune Meter Co. 78
Nordberg Mfg. Co. 6
Northern Gravel Co. 66
Nutting Co., H. C. 208

Ohio Brass Co. 211
Oliver Corp. 188

Parking Meter Advertising Co. 172
Palmer Filter Equip. Co. 190
Parsons, Brinckerhoff, Hall & Mac Donald 208
Peerless Pump Div. 183
Permutit Co. 50
Perry Co. 186
Phelan-Faust Paint Mfg. Co. 185
Pitometer Co. 208
Pittsburgh-Des Moines Steel Co. 166
Pittsburgh Equitable Meter Div. 47
Pittsburgh Steel Co. 67
Pittsburgh Testing Laboratory 208
Potts, Clyde 208
Premax Products Div. 181
Pressure Concrete Co. 60
Prismo Safety Corp. 134

Quinn Wire & Iron Works 46

Recordak Corp. 151
Reeves Brothers, Inc. 38
Remington Rand, Inc. 69, 192
Revere Electric Mfg. Co. 195
Rhodes, Inc., M. H. 77
Ric-wiL Co. 41
Robert and Co., Associates 208
Robinson Standard Aerial Surveys, Inc. 208
R. P. B. Corp. 169
Russell & Axson 209
Ryerson & Son, Inc., Joseph T. 24

Sanitary Engineers 203-209
Schoonmaker Co., Inc., A. G. 60
Seagrave Corp. 68
Seelye, Stevenson & Value 209
Sicard Industries, Inc. 31
Sikes Co., Inc. 201
Skinner Co., M. B. 8
Smith Corp., A. O. 27
Smith-Gray Corp. 60
Solvay Sales Div., Allied Chemical & Dye Corp. 190
Southern Signals, Inc. 162
Southwest Engineers, Inc. 209
Statler Hotels 44
Stellwagen, Robert H. 209
Stewart Iron Works Co., Inc. 198
Street and Traffic Safety Lighting Bureau 130
Superior Engines 71

Tarrant Mfg. Co. 173
Tennessee Corp. 56
Texas Co. 2, 20
Todd Shipyards Corp. 196
Toledo Testing Laboratory 209
Transport & Supplies Co., Ltd. 33
Turbine Sewer Machine Co. 76

U. S. Bronze Sign Co., Inc. 64
U. S. Pipe & Foundry Co. 36
U. S. Steel Subsidiary 30
U. S. Testing Co., Inc. 209

Valve & Primer Corp. 76

Wallace & Tiernan Co., Inc. Back Cover
Ward LaFrance Truck Corp. 51
Warren Foundry & Pipe Corp. 197
Western Railroad Supply Co. 55
Wilkinson Products Co. 186
Westinghouse Electric Corp. 144
White Mfg. Co. 62
Wickwire Spencer Steel Div. 70
Wood Co., R. D. 40
Worthington-Gamon Meter Co. 186

Professional Service Directory — 203-209

From the time the initial trolley coach installation was made in Des Moines, these speedy electrics have increased earnings substantially on each line after conversion. Here is the record:

NAME OF LINE	TYPE OF SERVICE BEFORE CHANGEOVER	YEAR CONVERTED	REVENUE INCREASE AFTER CHANGEOVER
6th Avenue	Streetcar	1938	15%
Clark-East 6th-9th	Streetcar	1939	18%
Walker Street	Streetcar	1940	52%
West Des Moines-Ingersoll	Streetcar	1942	56%
University	Streetcar	1947	8.83%
Crocker-East 14th	Streetcar	1948	9.79%
2nd Avenue	Motor Bus	1948	17.50%
Fairgrounds	Streetcar	1949	* ....
Easton	Motor Bus	1949	* ....

*IT IS TOO SOON AFTER THE CHANGEOVERS TO ESTABLISH ACCURATE REVENUE INCREASES FOR THESE LINES.

Because its 148 trolley coaches are such good "money makers," the Des Moines Railway Company plans to convert its remaining rail line to this popular service next year. And, no wonder, the record speaks for itself.

TROLLEY COACH AND STREET CAR
2960-T
Ohio Brass
MANSFIELD, OHIO
CANADIAN OHIO BRASS CO., LTD., NIAGARA FALLS, ONTARIO

Presenting the
W&T RESIDUAL CHLORINE RECORDER

Culminating 35 years' leadership in chlorination, W&T now offers the Amperometric Residual Chlorine Recorder to water works operators desiring the finest in chlorination control. For the first time, it is possible to actually SEE what you're doing.

WHAT THE RECORDER DOES: It provides a continuous, permanent record of actual chlorine residuals—either free available or total.

WHAT IT IS: The Recorder consists of a cell and a recording mechanism attractively housed in a handsome, gray enameled pedestal to complement any W&T Chlorinator installation. Optional accessories include a *Remote* Residual Indicator and a *Remote* Alarm System.

HOW THE RECORDER WORKS: In a continuous sample of the water under test, a function of the residual is measured and subsequently recorded on a 24 hour circular chart in terms of ppm of residual chlorine.

ADVANTAGES OF RESIDUAL RECORDING: Residual recording includes these big advantages—(1) Better chlorination control (2) A permanent record of performance (3) A check on operating irregularities (4) Determination of chlorine demand (5) To ascertain residuals in the distribution system (6) As a check on chlorine usage to avoid wastage, and (7) Because the record is continuous, operating data is available which could not be obtained by periodic testing.

WHAT USERS SAY: Many installations of this Recorder are in successful operation. Here's what some users say—

"—The recorder enables us to save many dollars on chlorine—"

"—This instrument functions with extreme accuracy and fidelity. It provides something that experienced water plant operators have long desired—"

"—I congratulate Wallace & Tiernan on the development of this useful equipment which is probably the most important advance in the science of chlorination in the last twenty years—"

WRITE TODAY FOR FREE CATALOGUE TP-59-C GIVING COMPLETE DETAILS ON THE W&T RESIDUAL CHLORINE RECORDER

WALLACE & TIERNAN
COMPANY, INC.
CHLORINE AND CHEMICAL CONTROL EQUIPMENT
NEWARK 1, NEW JERSEY • REPRESENTED IN PRINCIPAL CITIES

S-36